July 1960

# MANAGEMENT *and* BUSINESS AUTOMATION

*Cards, Cars and Computers*

Today's sophisticated buyer of scientific and business data processing equipment knows that expandability, efficiency, and simplicity of operation must be considered right along with speed specifications. *The Bendix G-20, with "organization chart" design offers an optimum combination of* ALL *these features that you'll find in no other system . . . at any price!* To see why, compare the G-20 to an efficient business organization. The "boss" of the system is the Central Processor . . . a very fast digital computer. Unlike other data processors which must direct every operation, this boss delegates many of its responsibilities to highly skilled "line supervisors," called control buffers. These units direct input-output operations, data transfers and code translations—independently, but under program control. The Central Processor remains free to do the work that only it is qualified to do . . . high speed computing, as well as scheduling and directing the work flow in the proper order of importance.

This "organization chart" efficiency is what makes the G-20 system so fast and economical. It makes multiple, simultaneous operations completely practical, and with a minimum of equipment. The G-20's own management skill eliminates most operator decisions.

Truly modular, a G-20 system can vary in size from medium-scale to very large. Note carefully the specifications below. Check them against any other data processing system you wish . . . then compare price. You will see why we can state so confidently that *the Bendix G-20 offers unequalled performance for your data processing dollar. Write or wire for detailed descriptive literature.*

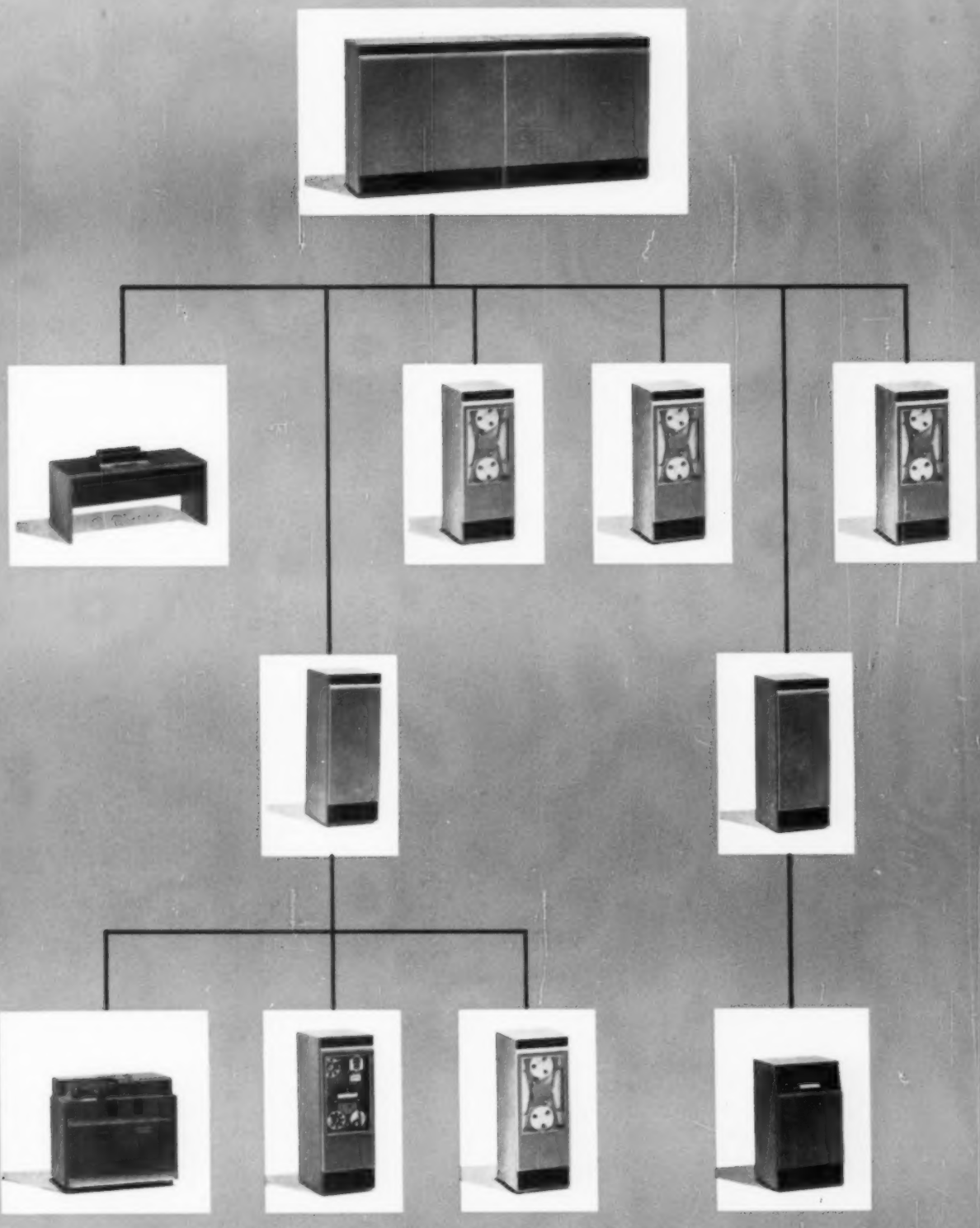
# Bendix G-20

## *with organization chart design means unequalled performance for your data processing dollar*

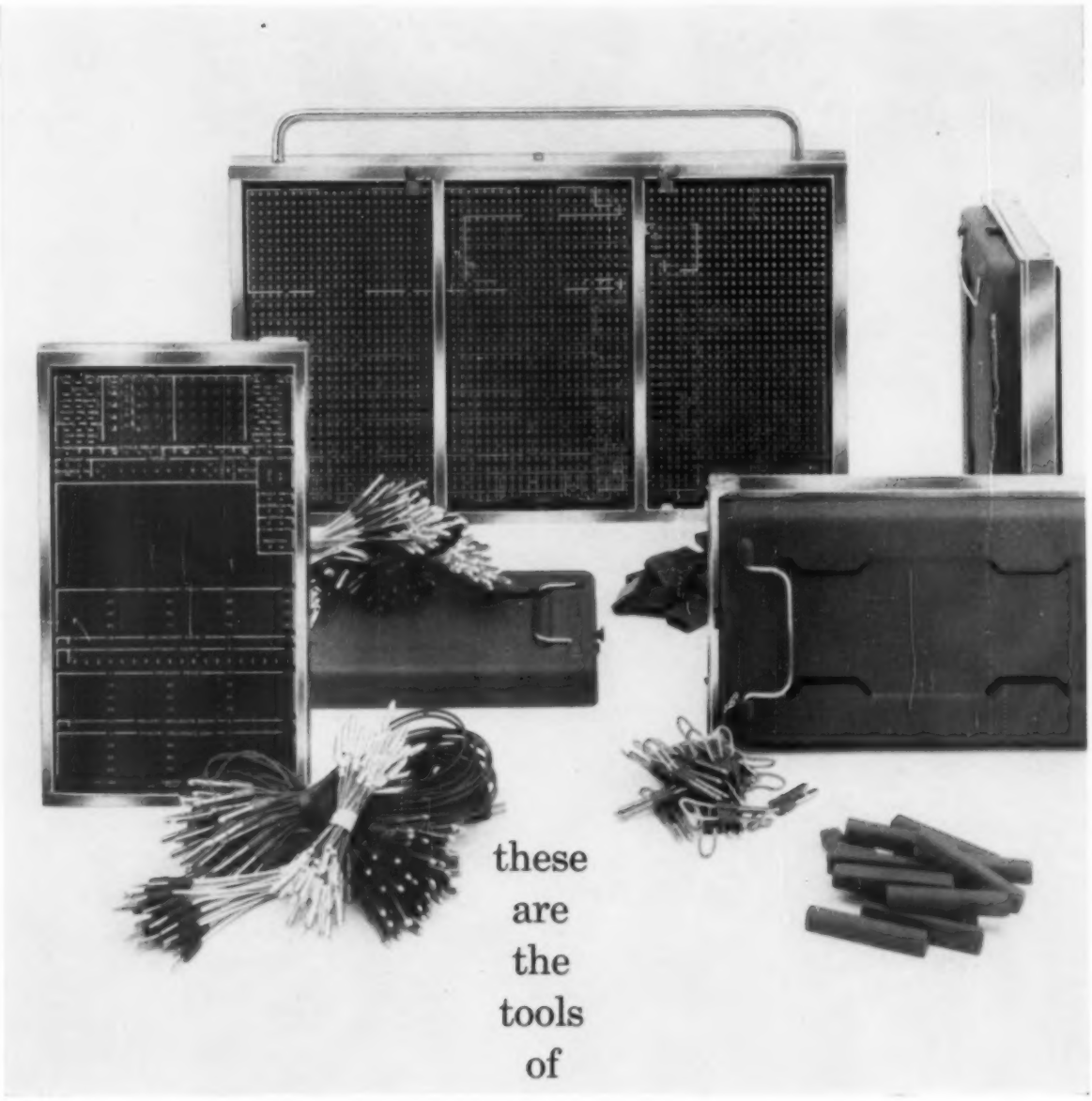
SPECIFICATIONS: MEMORY: Core, to 32,768 words in 4096 word modules. EXECUTE +: 7 μs. avg., fixed point, one-word precision. 13 μs. avg., floating point, one-word precision. EXECUTE ×: 49 μs avg., fixed point, one-word precision. 49 μs. avg., floating point, one-word precision. ARITHMETIC: Built-in floating point, 12 decimal digit precision. CIRCUITRY: Solid-state; parallel; 2.5 kva. PROGRAMMING: Algebraic compiler or symbolic assembler. INPUT/OUTPUT: 165,000 character/second max., asynchronous. MAGNETIC TAPE: 120,000 decimal digit/second read-write. LINE PRINTERS: 600-1250 lines per minute. PUNCHED TAPE: 500 or more character/second readers. 100 or more character/second punches. PUNCHED CARDS: Standard high-speed 80 column units. CONTROL BUFFERS: 1024 character memory for data and commands. Controls transmission on-line or off-line.

**Bendix Computer Division**
DEPT U-26 LOS ANGELES 45, CALIF.

Bendix



ORGANIZATION OF A TYPICAL MEDIUM SCALE G-20 SYSTEM

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# MANAGEMENT *and* BUSINESS AUTOMATION

**July, 1960**
Vol. 4, No. 1


*New ideas, developments, applications, results, and the human impact of business automation in commerce, industry and government.*


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By C. Northcote Parkinson

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**...can help you**

**VISIrecord Systems Specialists have the know-how to analyze your record-keeping set-up. Their experience and the facilities available to them will enable them to provide you with a time and money-saving system. Write to Dept. BA-4 for case histories on above and any other applications.**

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# *Scanning the Issue . . .*

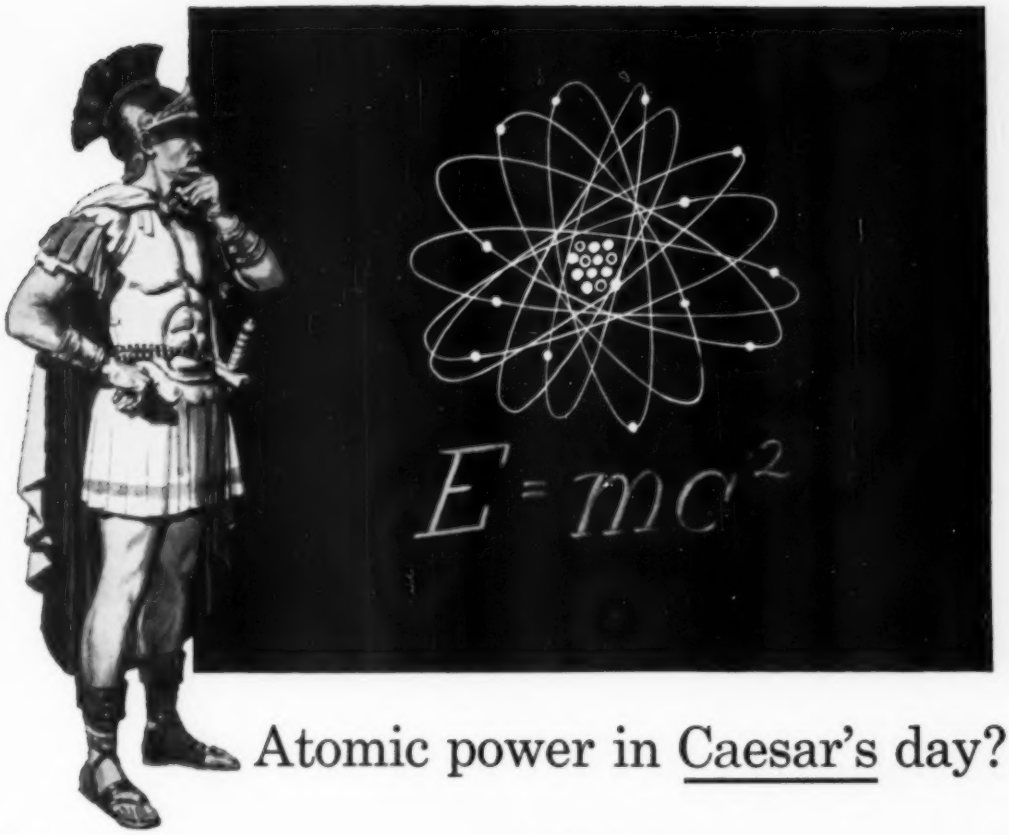
This month's feature took MBA to the Kenosha, Wisc., plant of American Motors Corp. for a first hand look at how **"Computers Keep Ramblers Rolling,"** page 18. The reader will start from the computer room, which houses two IBM 650's, see how orders are converted into schedule cards, then move into the assembly line operation where specification information is broadcast to each phase of production. The computers function as Rambler's production control enabling men and mechanization to currently turn out some 1,800 cars daily.

The distinguished and witty Dr. C. Northcote Parkinson, inventor of Parkinson's Law (an economic theory now enjoying more popularity than the law of supply and demand) and author of the forthcoming book, "The Law and the Profits," takes a **"Hard Look at Efficiency Experts,"** page 22. His buffoonery also has a serious moral for the members of this fast growing and (according to Parkinson) superfluous profession.

The history of a successful systems and procedures application to a large company's organization and communication problems is described by president Dean Anderson McGee, of Kerr-McGee Oil Industries, Inc., Oklahoma City. This frank appraisal provides a classic study in **"Administrative Systems —A Management Necessity,"** page 28.

**"Personalized IDP for Small Business,"** page 34, tells how Transport Clearings of New York, beginning business with IDP has developed and grown with its custom plan for clearing and distributing freight charges.

Lufthansa German Airlines modernize their internal communications system in **"An Intercom System Breaks Telephone Traffic Jam,"** page 26.




# Atomic power in Caesar's day?

*Certainly!*

It was there, in the ground, in the air and water. It always had been. There are no more "raw materials" today than there were when Rome ruled the world.

The only thing new is knowledge . . . knowledge of how to get at and rearrange raw materials. Every invention of modern times was "available" to Rameses, Caesar, Charlemagne.

In this sense, then, we have available *today* in existing raw materials the inventions that can make our lives longer, happier, and inconceivably easier. We need only *knowledge* to bring them into reality.

Could there possibly be a better argument for the strengthening of our *sources* of knowledge – our colleges and universities? Can we possibly deny that the welfare, progress – indeed the very *fate* – of our nation depends on the quality of knowledge generated and transmitted by these institutions of higher learning?

It is almost unbelievable that a society such as ours, which has profited so vastly from an accelerated accumulation of knowledge, should allow anything to threaten he wellsprings of our learning.

*Yet this is the case*

The crisis that confronts our colleges today threatens to weaken seriously their ability to produce the kind of graduates who can assimilate and carry forward our rich heritage of learning.

The crisis is composed of several elements: a salary scale that is driving away from teaching the kind of mind *most qualified* to teach; overcrowded classrooms; and a mounting pressure for enrollment that will *double* by 1967.

In a very real sense our personal and national progress depends on our colleges. They *must* have our aid.

Help the colleges or universities of your choice. Help them plan for stronger faculties and expansion. The returns will be greater than you think.

If you want to know what the college crisis means to you, write for a free booklet to: HIGHER EDUCATION, Box 36, Times Square Station, New York 36, New York.

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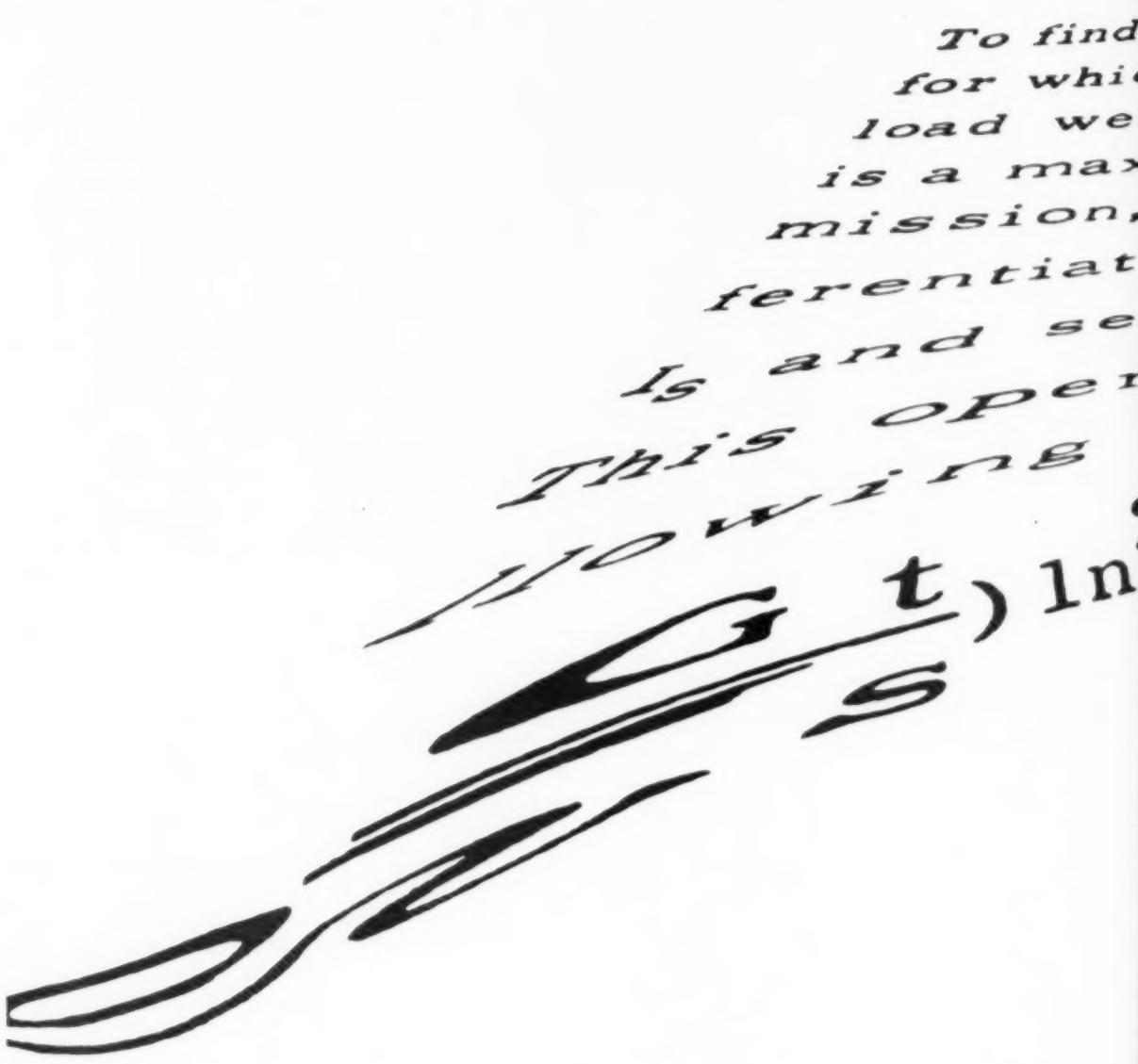
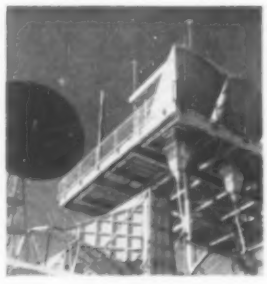



# Now 75,000 words can jump 7 leagues in one minute



**This is what IBM TELE-PROCESSING* means to North American Aviation: tape-recorded accounting and engineering data transmitted to distant locations over microwave.**

It would take 500 people speaking over 500 telephones to send information as fast as IBM TELE-PROCESSING now does it at North American Aviation.

From the company's Rocketdyne Division in Canoga Park, California, magnetic tape-recorded data is sent over microwave (ultra-high frequency radio signals) to tape at the Company's Los Angeles Division 30 miles away.

*Trademark

e specific impulse
the ratio of pay-
ht to gross weight
num for a given
Equation 10 is dif-
with respect to
equal to zero.
tion yields the
lationship:

When the exponents of both sides of this
are equated, the equation describing the
impulse for maximum payload weight is ob

$$\left(\frac{\Delta v}{g\, I_s}\right)^2 \exp\left(\frac{\Delta v}{I_s\, g}\right) \frac{\Delta v\, \alpha}{1100\, \eta} \quad 0$$

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lations.

THIS DATA TRANSMITTED BY
IBM TELE-PROCESSING FOR
NORTH AMERICAN AVIATION

$$\frac{1}{\frac{(1-Gt)}{I_s}} = 9.10 \times 10^{-4} \Delta v_G$$

For example, budget information compiled at Rocketdyne is transmitted via microwave to Los Angeles, where it is quickly processed by IBM 705 computers, and the results sent back the same day for overnight printing in graph form—thus providing close management control of Rocketdyne rocket engine programs.

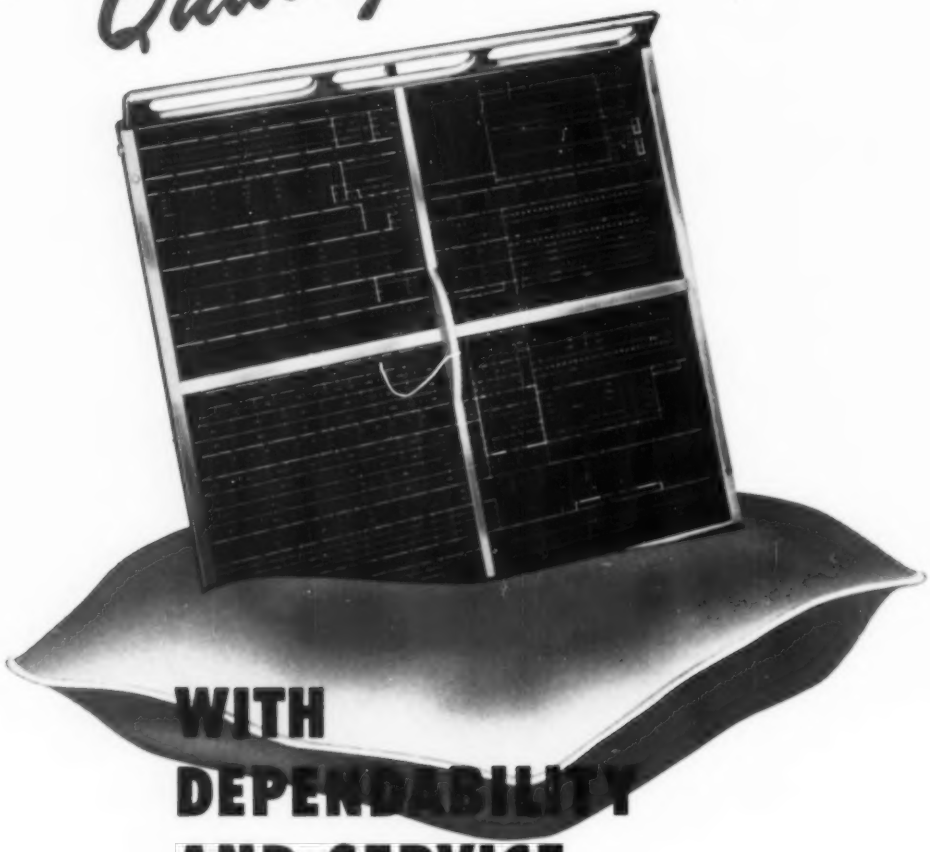
Drawing on its years of experience in data transmission, IBM joined with the Pacific Telephone and Telegraph Company to set up this pioneer two-way microwave link.

WHAT IBM TELE-PROCESSING MEANS TO YOU

IBM TELE-PROCESSING means moving data to the right place at the right time, and in the right form. Whether locations are a thousand yards apart or a thousand miles, IBM TELE-PROCESSING enables you to obtain maximum efficiency from your data processing system. Ask your IBM representative how this valuable concept might benefit your company's operations in a number of exciting ways. International Business Machines Corporation.

DATA PROCESSING DIVISION ▲ IBM TELE-PROCESSING

# *Unsurpassed Quality!*



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# RANDOM ACCESS

*Information bits from the Editor's memory file*

## Translation Troubles

A new device for automatically translating one language into another has stubbed its electronic toe on a bit of Russian poetry. The machine, developed by IBM scientists as part of a $6 million Air Force Research project, was tape-fed some verses from the Russian newspaper Pravda. The poem concerned a local Communist politician—Predrayispokoma—who was always traveling from home and office and could never be found when he was wanted. His little bride—Zhinka—is now a widow.

Here is the machine's translation effort:

Chairman—Adopted

*Not in reception-room no, not house.*
*Day. And two. And five . . .*
*Where it, predrayiskpokoma? . . .*
*In it way again.*

*What it own hut!*
*Zhinka—how widow . . .*
*All "for/after experiment/experience" someplace*
*Ride ahead.*

*It to innovators will arrive—*
*Immediately for/after notebook*
*—Nu-with/from, lay, people! . . .*
*(interview beret/takes!)*

The machine has a 500,000 memory of words, photographically recorded on a glass disc. It "reads" the Russian words, finds their English equivalent and prints the translation. The machine had trouble with the Russian poetry because of the confusing word order and the problem of selecting the right meaning from among many. When it didn't know a word, it printed it out in the original Russian—in Red. All told, the printed results probably made as much sense as anything else the Russians say.

## Machine Selects Jurors

A non-political machine has taken over the task of selecting prospective jurors for New York County. The sorting machine, part of an IBM installation, replaces the antiquated method of picking paper ballots at random from an ancient mahogany drum, a system in use for over 75 years.

In the first test of the system, 1,300 jurors were drawn for service in the Supreme, City, Municipal and General Sessions Court. The entire drawing, involving the random selection of the punched cards and the printing of the jurors' list, took only 25 minutes.

Under the old method, nine clerks would have spent over 45 minutes transcribing names from huge ledgers and preparing slips for the rotating drum.

We're proud of the mechanical accuracy of the Friden fully automatic calculator. *But neither it nor any other calculator can get a right answer from a wrong entry.*

The calculator that allows the smallest margin for operator error will actually prove to be the most accurate.

The Friden SBT requires fewer manual keystrokes, fewer operator decisions than any other calculator on the market.* *In terms of day-to-day output, this makes it the most accurate calculator you can buy.*

For a no-obligation, ten-minute demonstration of "The Thinking Machine of American Business," call your Friden man or write: Friden, Inc., San Leandro, California.

**This is PRACTIMATION: automation so hand-in-hand with practicality there can be no other word for it.* © 1960 FRIDEN, INC.

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Write with a smooth velvet flow ink line.

Colors may be assorted in doz. lots. 10 day return guarantee. Order in quantity and really save. You can't lose.

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*from the*

# Publisher's Desk

ONE of the chores of MBA's circulation department is to turn back subscription orders to people who are not involved in the area of business automation and data processing.

Quite a few subscriptions are received from businessmen who apparently want some knowledge of the subject. Yet, their job content is such that they have no contact at all with actual data processing activities. These orders we decline.

Don't we want more readers? We do, of course. We are eager to obtain additional readers, but we want them only if they meet the qualifications which we feel are necessary to insure an audience with common problems and interests. It would not be possible to adhere to our editorial program if our readership was composed of persons with little in common other than the fact that they are in the business world.

It is often said that we live in an age of specialization. This is particularly so in the publishing field. There are fewer and fewer general magazines each year, while specialized publications are becoming of greater importance to the business world. Businessmen take time to read something with a definite bearing on their own job requirements but find little time in their busy schedules to read about subjects of only general application to all business. (The possible exception is the universal subject of taxes.)

A publication cannot endure if it attempts to be all things to all people. Such a program leads to a loss in editorial vitality and eventually to a watered-down presentation of little interest to anyone.

Since MBA is edited directly for those who are responsible in some way for business automation and data processing activities, we feel compelled to limit our circulation to these people only. In that way our editors can be sure of the interests of their ultimate judges—the readers.

Charles W. Gilbert


MANAGEMENT *and* BUSINESS AUTOMATION

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Charles W. Gilbert

Manager, Marketing Services,
Stanley Roy

Production Manager,
Mary Haley

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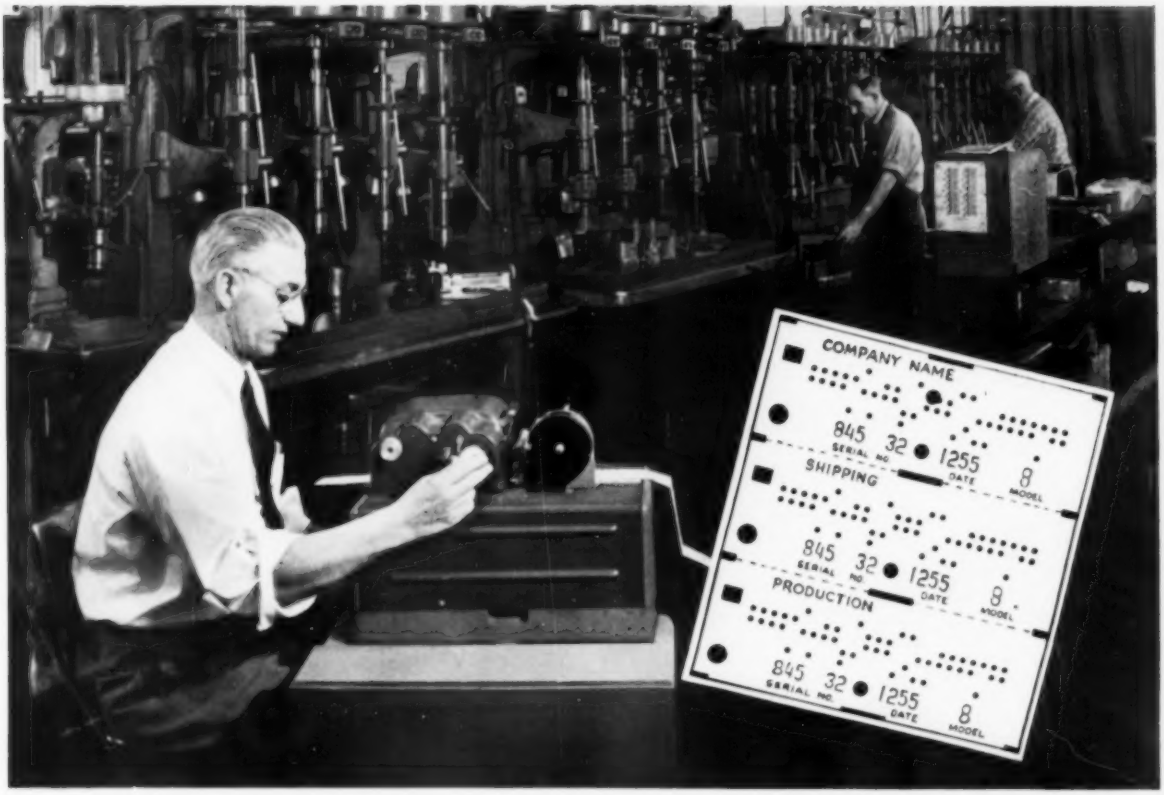
COMPANY NAME
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SHIPPING
845 SERIAL NO. 32 1255 DATE 8 MODEL
PRODUCTION
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***Reduces key punching errors and costs!*** Print-Punch Tickets are automatically converted to punched cards or punched paper tape without need for key punching. "Batch" machine-language records, created at the source by a single setting of a Print-Punch Machine, can often save hours and hours of key-punching time in the tabulating room. That's why key-punching costs shrink when Dennison Print-Punch goes to work!

***Learn more*** about making your data processing more accurate with Dennison Print-Punch Machines and Tickets. Mail coupon today.

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# MBA Editorial Index January-June 1960

This is a complete chronological index of articles appearing in the first six issues of MBA in 1960. A cross index of articles by application appears at the end.

### January, 1960

18 **Bankamericard—a Sophisticated Credit System for Californians,** by Arnold E. Keller. How new business automation techniques make the Bank of America's unique credit card system an economic reality for two million California families.

22 **Memo to the Programmed President,** by Carl E. Osteen. A systems man cautions top executives about an unwieldy forms control program.

28 **S K F Tightens Control over Production Paperwork.** An unusual application for duplicating machines which create some 14,000 pieces of paper daily and provide production control for S K F Industries, Inc.

30 **Navy Attacks Paperwork Costs on a World-wide Front.** This article reveals a system of source data automation designed to convert data into machine language at the point of origin.

34 **A Comprehensive Look at High-speed Printout,** by Norman Statland. Text and charts point out that the state of the art of high-speed printout compares favorably with the internal speeds of most computer systems.

38 **Koppers' Centralized Payable Systems Controls 70 Plants.** Shows how bookkeeping machines, coupled with keypunches, enables the Koppers Co. to control accounts payable for 70 plants in one central office.

### February, 1960

14 **Niagara Mohawk—Electronics for its Future.** Three punched-card installations are giving way to a computer system which will handle electric and gas utility billing for some 1,400,000 customers.

20 **A New Role for the Systems Man,** by John W. Haslett. Manager of methods and procedures for Shell Oil Co. describes "the new trend toward the synthesis of many related procedures into an integrated system for the company as a whole."

24 **Market Managing by Data Processing.** An installation that started as a means of reducing accounting department paperwork developed into the key function of L. B. Foster Co.'s entire marketing program.

28 **Forms Design Plays Key Role in IDP System.** How Tennessee Products and Chemical Corp. solved two troublesome problems—order-entry invoicing and traffic control—with an IDP system based on new forms concepts.

### March, 1960

18 **The Textile Industry Swings to Data Processing.** Though slow in starting the textile industry has made rapid and dramatic strides in the application of data processing to the many complex operations of the industry—one example, a case history at the American Thread Co.

22 **COBOL—Common Business Language for Computers.** An MBA exclusive report on the latest move toward ultimate development of a universal language for business computers.

28 **A Filing System Solves an Input Bottleneck.** Craftint Mfg. Co. streamlines its filing operation to speed input for their Card-o-Matic billing system.

32 **'Touch Stenciling' Process Simplifies Carton Labeling.** Breck Shampoo speeds shipments and saves money by integrating its label writing system with punched card order processing.

### April, 1960

16 **The Big Count Is Under Way,** by Arnold E. Keller. Social and economic statistics gathered for the 1960 Census will be produced some $15 million cheaper and six to 18 months sooner than the 1950 reports, thanks to electronics.

22 **New Billing Method Moves Tomorrow's Orders Today.** Schweber Electronics eliminates a costly delay in invoice preparation with a new system centered around an electronic typing calculator.

26 **A Custom-built System for VA Records Retrieval.** The Veterans Administration's Department of Insurance, with six million accounts, recognized the need for a fast and efficient method of locating and copying historical data requested by its customers.

35 **Cards and Camera Speed Catalog Production,** by Robert Minor. GM Photographic of Detroit services seven of the General Motor's Corp.'s automobile divisions by preparing and updating their catalogs, parts and price lists.

### May, 1960

16 **The Administrative Revolution,** by T. A. Smith. An article by the executive vice president of RCA's Industrial Electronics Products Div. charts a common-sense approach to the problems of paperwork control.

22 **The Facts About Facsimile,** by Arnold. Keller. The first roundup on facsimile as a business communication system, listing manufacturers and covering history and applications.

26 **Automatic Cost Data Provides 'On the Button' Job Estimates.** The story of costing procedures at Connecticut Hard Rubber Co. tells of a simple, but effective Keysort system which provides management with enough data to make accurate bids on every new job.

30 **A Successful Venture in Computer Sharing.** SPAN, data processing center for three Hartford, Conn., insurance companies, is the first computer cooperative of its kind.

### June, 1960

20 **National Survey of Computer Department Salaries.** MBA Research presents the first attempt to introduce standard job classifications and levels in the computer field as well as the first national computer salary survey.

26 **Myth of the "Electronic Brain,"** by William Christian. A factual look at the development and capabilities of the digital computer proves the term "electronic brain" is decidedly a misnomer.

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# Letters

Dear Sir:

I read with interest your April issue and particularly "From the Publisher's Desk."

This dealt with your opinions and general problems concerned with the many organizations now using exhibits to finance their regional and national conventions.

I too have been greatly concerned over this. Like many other organizations, we too will have an exhibit hall. However, unlike many other organizations who use the exhibit features to finance their conference, we feel that the exhibiting of products that are directly related to our field is of utmost importance.

(At the National Conference) Our registrants spend an intensive three days attending many seminars dealing with problems of automation and to many of them, it is very important to be able to apply their recently learned knowledge to actual computers and equipment in our Exhibit Hall.

Now to your statement that professional associations should be concerned mainly with their own business problems. Running exhibitions is a business in itself, and is better left to specialists. Then you go on to say, "outside talent should be hired to manage the show." I fully realize that it is a hardship on the exhibitor to have an untrained exhibit manager in charge of setting up an exhibition without having prior knowledge of handling such a show. However, I also believe that there is a danger ever present in that the show will automatically become strictly commercial, with the general aim only to make money.

Nothing could be further from our intent and aims, as we believe that our Exhibit Show is a means of education and is mutually beneficial to the exhibiting company as well as the registrant, who is able to get first-hand information and see the latest devices after having heard about them for many, many hours during the conference.

I know that you will agree with many of my remarks, as I have

*(Continued on page 16)*


**ANNOUNCING A SPECIAL REPORT . . .**

## *"Determining Salaries For Computer Personnel"*

Prepared by Philip H. Weber and Company in conjunction with the research bureau of MANAGEMENT and BUSINESS AUTOMATION MAGAZINE.

This report, first of its kind to be published, provides the information necessary to establish a systematic plan of salary administration for computer department positions. It also will serve as an accurate guide for checking an existing plan. Subjects covered in the report include:

**Basic Problems in Determining Salaries**
**Descriptions for Standard Positions**
**Descriptions for Combined or Mixed Positions**
**Position Requirements for Rating Purposes**
**Standard Position Classification Structure**
**Grades and Ranges for All Positions**
**Survey Validation of Ranges**
**Adjustments of Ranges for Area and Company**
**Classification of Individual Employes into Positions**
**Effective Administration of Salary Program**
**Supplementary Data from MBA Computer Survey**

The report also includes a unique evaluation and grading guide which greatly simplifies the classifying of individual employes.

To reserve your copy of this comprehensive report, circle number 120 on the Reader Service Card, facing page 42. The report is scheduled for August release. Price to MBA readers will be $5.00.

# Letters

*Continued from page 15*

agreed with many of yours in your statements, and I hope by this, your publishing such pertinent remarks, we may be able to jointly indicate to all associations that there is a great pressure put upon the suppliers and there is great danger in having them withdraw and form their own association. I believe this to be detrimental and certainly hope that in the future each national association and regional group will thoroughly examine their desires and true aims regarding exhibits.

*J. L. Neumiller*
*Vice President*
*1960 National Conference*
*National Machine Accountants Association*

Dear Sir:

I have seen the numbers used by Mr. T. A. Smith in his article, "The Administrative Revolution," before and usually they were used to lead the reader to the same conclusion—fewer office workers through more electronic data processing equipment. I do not debate that what Mr. Smith says is true, but for amusement let us take the same numbers and see if they can tell another story and can infer, perhaps, another solution.

| Year | Factory | Office | Ratio | Total |
|---|---|---|---|---|
| 1910 | 953 | 47 | 20 to 1 | 1000 |
| 1960 | 889 | 111 | 8 to 1 | 1000 |

If the factory employes themselves accounted for 50 per cent of the 700 per cent increase in productivity, the remaining 50 per cent must come through the actions of the hard working exploited office worker. We may then say that the 64 additional office workers permitted us to act in such a way that we did not have to hire 3300 additional factory workers, or each additional office employe reduced factory employment by 51. The conclusion now reached is to increase productivity by increasing office personnel and since the professed aim of EDP is to reduce office personnel, it is a serious mistake to install such devices.

Either conclusion falls down when the many companies with 200 factory and three office (including the owner) workers are examined.

Historically the foreman was a subcontractor working in the owner's building and he had his office separate from the owner. Perhaps we have only witnessed a centralization of office work, and staff.

My belief is that computers are not a substitute for any employe, but are a means to added 'know-how,' and in the future brains, for the firm and will result in improved total efficiency.

*Henry Beers*
*Eastern Consulting Associates*

**Editor's Note**

The remarks of Mr. Leslie E. English published in the May letters' column, expressed a personal opinion and were not intended to imply endorsement of MBA by the National Machine Accountants Association.

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# Computers Keep Ramblers Rolling

WHAT could have been an accounting nightmare at American Motors Corporation has become a paperwork dream come true.

The firm's record growth during the past two years might easily have created a paper-processing bottleneck with a resulting slowdown in production. Instead, the intelligent use of electronic data processing equipment has not only enabled American to keep paperwork abreast of production, but has actually resulted in a speedup of the flow of new automobiles rolling on the assembly lines.

"Between 1957 and this year, Rambler's five month production has risen 250 percent, from 57,059 cars to 225,982," says M. A. Hagan, controller at the Kenosha, Wis., plant. "This is a sensational record," Hagan added, "but almost as amazing to us has been the ease with which our two computers have handled production scheduling and issuance of vendor releases. Processed manually, these tasks would require an army of people working a 24-hour day. I don't know where we'd have put them, or trained and supervised such an army.

"But now," he continued, "our equipment—IBM 650 data processing systems—performs these and other applications more accurately and faster than the manual operation when our production was considerably lower."

American Motors' production scheduling is integrated to a high degree. The same card punched to schedule a car into production is passed and repassed through the computer to produce the paper necessary for scheduling, building, shipping, invoicing and analyzing sales and cost of sales.

Handled via computer and teleprinter, the scheduling operation produces data that before was an economic impossibility. There are other benefits from the system as well. With the advent of the Federal Price Disclosure Label Law in 1958, the company set up a 14-person department to type out the necessary labels. Now, these labels are produced entirely as a by product of computer processing and the department no longer exists.

Two computers are responsible for a highly synchronized operation predicated on having the right parts in the right place and in the right quantity at the right time.

Automation of production parts and component releases to vendors enables the firm to procure vitally needed purchased parts much more quickly and easily. In addition, scheduling personnel have been released from routine duties for more important work.

"Our production schedules have had a minimum of 10 major increases and several minor ones within the past year," E. C. Greiner, superintendent of the Planning Department (which includes the data processing operation) explained. "It is up to us to get the parts to meet these increases. Formerly, when we scheduled vendor releases manually, it took up to three weeks to reschedule for a major change. We normally issue new schedules monthly. Before computer processing, our purchase follow-up men were doing virtually nothing but vendor release scheduling and were forced to neglect other important work."

## Fewer follow-ups

"Now," Greiner pointed out, "computers get the vendor release changes within three or four days. This means faster delivery of material—as much as two weeks faster. It also means that we need fewer follow-up men now, when we are producing about 1,800 Ramblers a day, than we did with a production of 800."

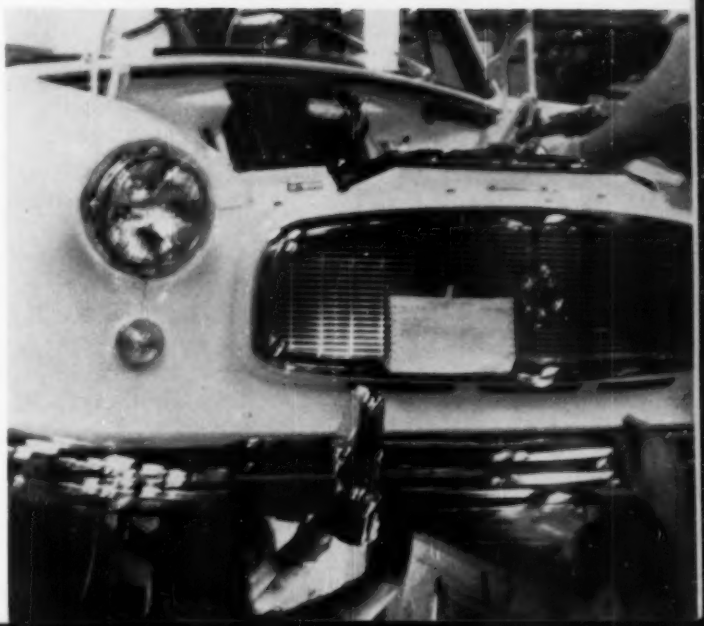
Vendor releases for fully 95 percent of American Motors' 3,300 purchased parts are computer scheduled. The remaining five percent—too involved to program—are manually scheduled.

The production scheduling system includes the listing and control of every possible customer option—about 100, ranging from color and trim to foam cushions—on the one, original schedule card. When a dealer gets an order from a customer, he sends it to one of 24 corporation-owned zone sales offices. The zone office produces a typed car-purchase order for each automobile, listing all options, and forwards the orders to Kenosha.

Each day the Car Distribution Department (liaison between the zones and the Planning Department) sends Planning the number of orders it requests. This is currently about 1,800, but varies depending upon production factors.

A key punch operator prepares a schedule card from the order. This card lists every option that applies to the specific car ordered. A complete description of the car and code number of the dealer who ordered it is also punched into the card.

The schedule cards are next "edited" through



Key punch operators prepare a schedule card from original orders, listing every option applying to specific cars.

Al Pryse, head of "broadcasting," checks transmittal of car building orders to production points.

the IBM 650. The unit punches out an exception card for any errors it might detect, such as illogical options. An example would be a station wagon ordered with an option that is available only on a sedan. Since the card punch operators detect most errors involving illogical options, there are usually no more than 15 or 20 exceptions each day.

## Orders to broadcast

These few cards are pulled manually, corrected immediately and the Car Distribution Department notified of the corrections made.

Schedule cards again go through the 650 to produce output cards, which in turn are run through an IBM 407 accounting machine to print a listing of "Cars Scheduled for Building."

Included in the listing is serial number, zone number, dealer number, and domestic, export or Canadian order. Also shown is method of shipment; fleet, zone, taxi or police order; model number, and a complete list of options.

This document is printed on a duplicator master, and approximately 30 copies are run for distribution to assembly points in the Kenosha plant and to American Motors' body plant in Milwaukee. It serves primarily as a check-off list to make sure the car has been scheduled.

The original schedule card then is reproduced three times on an IBM 514 reproducing punch. One card is sent to the body plant—either in Kenosha for the Rambler American or Milwaukee for all other models—where it is converted to five-channel, teleprinter tape on a card-to-tape converter. The tape is used to transmit "Car Building Orders" to receiving units at the proper manufacturing stations in the plant. Work then begins on the body of the automobile.

At this time, Planning also gathers data for preparation of a seven-part order label set. Decks of dealer name cards and freight rate cards are merged, via a collator, with the original schedule cards. These are run through the 650.

There are, naturally, multiple orders from a single dealer. For every schedule card, the computer punches out a dealer name and a card spelling out the name and description of the model and its base-car. The 650 also punches out a card for every two options called for, spelling out what they are and their prices. Finally, the computer punches out a card with the method of shipment, total freight charges, total weight and total delivered price of the car.

These cards are put through an accounting machine to print the multi-part order label set. One part is the Federal label for each car. The other copies are for billing, a work copy, shipping, transportation company, dealer, marshaling yard and

". . . Amazing to us has been the ease with which our two computers have handled production scheduling and issuance of vendor releases. Processed manually, these tasks would require an army of people working a 24-hour day. . . . But now, our equipment performs these and other applications more accurately and faster than the manual operation when our production was considerably lower." M. A. Hagan, plant controller, Kenosha, Wis.

Edward Moeller (at right), divisional supervisor, Planning Dept., discusses data processing plans with Jerry Ruberg, tabulating supervisor.

an inspection record printed on ledger card stock.

Next, the original schedule cards are collated with year-to-date cards and run through the 650 to update the latter. Twice a week the year-to-date cards are put through an accounting machine which prints, on a duplicator master, a 47-page recap of all orders received. This listing is grouped by series — American, Economy, Six, Rebel and Ambassador—and by options and combinations of options. About 20 copies of this are duplicated for distribution to the firm's central office in Detroit, and for production control personnel.

When the car body arrives from Milwaukee or Kenosha, the other two cards, reproduced from the original schedule card, are pulled from the file. One goes to the Billing Department. The other is converted to teleprinter tape and used to "broadcast" Car Building Orders to the various in-plant assembly points.

## Right time, right place, right part

The broadcasting operation involves transmitting the orders to some 58 different teletype stations located throughout the assembly operation. Upon receipt of an order, each station places the specified parts, with the order attached, onto a plant-wide conveyor line. Wheels, fenders, doors, chassis, trim, engine and other components travel the conveyor route, all sequenced to arrive at the proper point on the assembly line. The attached orders serve to identify each part, assuring that they are placed on the proper car.

As the body starts through the assembly line, the Order Label set is also attached to it. When the completed car comes off the line, the label is put on the side window and the balance of the set is distributed.

"Our highly synchronized operation is predicated on having the right parts in the right place and in the right quantity at the right time," Hagan said. "Our computer system has contributed to this accomplishment."

After serving in the creation of the "broadcast" tape, the reproduced schedule card is returned to Planning where, once a week, it is run through the 650 to produce output from which a production recap is printed.

As the completed automobile is shipped, the shipping copy is used to punch a card with the serial number and order number, which is put through a collator to pull the corresponding schedule and year-to-date cards. These go through the computer to accumulate information on the year-to-date card, then through an accounting machine to print a weekly listing of cars shipped.

To produce vendor releases, the Planning De-

*(Continued on page 38)*

# A Hard Look At Efficiency Experts

Parkinson's Law of Efficiency and Expertise—The boss who

**By C. Northcote Parkinson**

IN A BUSINESS corporation headed by a president of eminence, guided by directors of experience and overflowing with executives of proved competence and zeal, it must always seem strange that consultants should have to be called in from outside to advise on how the work should be distributed. Yet there are today more than 2,000 full-time management consultant firms in the United States, plus accountants, lawyers, engineers, advertising agencies and miscellaneous individuals practicing as consultants on the side, and the number is growing steadily.

If the officers and directors don't know how to organize the concern, it seems fair to ask what they do know and for what, indeed, they are being paid. It is also natural to wonder what reason there can be for supposing that outside consultants should know what the board does not. These questions, which have long baffled the public at large, would seem to deserve an answer. According to the law of supply and demand (which antedates Parkinson's Law, I believe, though it is less well known), there must be a great demand for efficiency experts, since they are in such large supply. (This is a very technical point we cannot go into now.) That there is a great demand for them suggests that they fill some need, nor is to be denied that they do useful work. It is easy to picture a dozen situations in which their services must be invaluable. There is the case of a business being started by someone of limited experience. There are all sorts of situations in which, lacking their help, a business man could seek advice only from his competitors.

Then, too, the organization of any large business needs periodic overhaul. Faced with this challenge, a really alert firm will take a leaf from government and establish an Organization and Methods Branch, thereby taking men away from their useful work in order to discover why the business is not going efficiently. But the normal practice is to call in a firm of consultants.

Thus we return to our original question: How can the consultants know more than the people who have given their lives to the particular business under review?

### About the Author

*Professor Parkinson sets a fast pace in the nebulous business world of committees, systems, consultants and automation. His satirical views on administration carry a large helping of truth that is hard to ignore. This is, perhaps, why he is so much in demand for speaking engagements in this country as well as in his native England.* MANAGEMENT AND BUSINESS AUTOMATION *hopes to present more articles by the astute professor in the future.*

wants to streamline his firm (i.e., fire people) hires experts to do it for him, thus neatly side-stepping the tar and feathers.

We can reasonably assure, to begin with, that the consultants know nothing at all. Their right to advise derives essentially from their initial act of putting up their shingles: "Sneering, Shockwell & Foggarty, Business Consultants" or "Sadleigh, Deep, Loring & Muddleworth, Efficiency Engineers." Everything has to have a beginning and, for the methods experts, this is it.

What were Foggarty and Muddleworth doing before they proclaimed their *expertise?* This is by no means apparent. They may have taken a correspondence course. They may have attended a class in ethics at the Harvard School of Business Administration. They may merely have failed to earn their living in any other way. But whatever their precise experience has been, there they are, experts in *expertise*, self-proclaimed magicians of the business world.

## Revolt at the lollipop plant

Hardly has their bronze tablet been screwed to the doorpost before the first corporation vice president is hammering for admission. As the line forms in the corridor the skilled observer will note that the gathering crowd of business executives includes few, if any, representatives of government. No general is there, pausing in the midst of a campaign and anxious for advice as to whether he should withdraw or attack. No admiral has rushed ashore to sob his troubles into a sympathetic ear. And if the President of the United States is among those jamming the entry, we must conclude that his disguise, at least, is good.

The middle-aged men blocking the sidewalk are drawn almost solely from the world of industry and commerce. They are qualified, decisive, tough and keen. The president of the corporation which makes celluloid goldfish knows just how his product should be manufactured, advertised and sold. The executive vice president of the firm which produces plastic balloons knows more, it is said, about elasticity and bursting point than anyone else in that mammoth industry. The sales manager of Lollipops, Inc., is unequaled in his grasp of stickiness, lumber, sugar content and color preference.

There is no one in the crowd who does not know his business. And yet they all seek the advice of Sadleigh, Deep, Loring & Muddleworth. Why, for heaven's sake? What does Sadleigh know about celluloid? As little as Deep knows of balloons or Loring of lollipops. What magic formula is it that these experts have to sell?

A careful survey has now established the fact that the clients who approach a business consulting firm do so most often with one of two motives. On the one hand, they may want scapegoats for the reorganization on which they have already decided. On the other, they may want to prevent such a reorganization from taking place.

The contrast between these two procedures can best be illustrated by references to two recent case histories. For obvious reasons the identity of both

the corporations and their business consultants will be concealed under names which are purely fictitious. The first of the two corporations concerned we shall call the Horseless Carriage Company, Inc., mass producers of antique cars. The second we shall call Historic Homes, Inc., mass producers of prefabricated homes, each with a prefabricated story of how George Washington slept there and with whom.

The directors of the Horseless Carriage Company of Detroit decided recently to streamline their organization. This decision was the direct result of reading "Parkinson's Law" twelve times, each of the directors having given it to all the others as a Christmas gift. They decided, therefore, to fire half their executives and demand some real work from the other half. Their problem was how to do this without being tarred and feathered in the middle of the company parking lot. In order to avoid this, they agreed that their proposed reorganization should be the work of outside consultants.

Therefore, canceling their earlier decision to present the author of Parkinson's Law with an antique car—the least they could have done in common decency—they called in Messrs. Sneering, Shockwell & Foggarty and explained briefly what advice they expected to receive. The chief advantage that such a situation as this offers the consultant is that he need not linger on the scene. He presents his report with one foot in the jet aircraft's door, reaching 20,000 feet before anyone has finished reading the first paragraph (which consists entirely of thanks to all for cooperation).

## Out goes primrose and white

These particular consultants work as a team. Once briefed on what the policy is to be, they go swiftly into action. Sneering is condescending in a supersilly way—"Is that your latest I. B. M.?" "You have never heard I suppose of marginal costing?" and so forth. Shockwell is direct and brutal: "You carry absurdly swollen overheads," he says firmly, "you should cut down by 52 per cent." Foggarty follows up with an involved explanation of why the changes are necessary. On this occasion the results of their incursion into the business can be tabulated as follows:

(a) Half the executives were fired.

(b) A digital computer costing $1,000,000 was acquired as a symbol of progress.

(c) All partitions were demolished, making a general office out of the space previously occupied by individual offices.

(d) The office color scheme, which had been primrose and white, was changed to lilac and gray.

Very different (at first sight) was the influence of Sadleigh, Deep, Loring & Muddleworth upon the organization of Historic Homes, Inc. The management of Historic Homes had been under pressure from a group of shareholders whose noisy spokesmen, Barker and Maybite, insisted that the firm's organization should be modernized. What exactly they meant by this proposal was never very clear, but they did not scruple to suggest that the executives were grossly overpaid considering that their responsibilities concerned only an unmodernized firm.

## Mr. Muddleworth explains

Faced with this dangerous movement, the president called in the experts. Their instructions, on this occasion, were to report that the organization (except in one or two minor respects) was just fine the way it was. In this group of consultants there is a different allocation of work. Sadleigh shakes his head, Deep looks profound, Loring specializes in a subtle compromise between a roar and a lear, and it is Muddleworth who enters into an obscure and involved explanation of why the changes are essential or (as in this case) needless.

As a result of their incursion into the business, the following changes were made:

(a) Messrs. Barker and Maybite became directors.

(b) A digital computer costing $1,000,000 was acquired as a symbol of progress.

(c) The general office was divided up by partitions to form individual offices.

(d) The office color scheme, which had been lilac and gray, was changed to primrose and white.

There would seem to be a complete contrast between the advice given in these two cases. But the significant point is that, on both occasions, the efficiency experts did something which the directors could not do for themselves. In the one instance, they took the blame for a purge which would have made it impossible for the directors to continue living in the same neighborhood. In the other, their function was to assure the shareholders that the whole organization had now been modernized (whatever that means) and that there could be nothing more to worry about.

While the two case histories just outlined are clearly typical, it would be a mistake to assume that the experts never have anything more useful to say. No one with experience in teaching could make that rash assumption, for he must instantly perceive where the consultants have another advantage.

Every teacher must at some time have had the experience of being asked, on short notice, to grade examinations in some subject of which he knew practically nothing. To the novice such a re-

"We do not know or care what his system is, but it was the choice of a man whose discrimination has been proved."

quest may bring a moment of dismay. To the older teacher it is no more than a nuisance, for he knows how the situation should be handled. When the papers arrive he sorts out the half-dozen which appear to be legibly, neatly and competently done. Reading these, he soon discovers what the right answers are supposed to be, at least for the purpose of that particular examination. Then he marks down the others for giving answers that are different and so presumably incorrect.

## The blonde at Cabbage Canning

In the same way the efficiency engineer has opportunities for comparing one organization with another. He guesses which is the best and can then criticize the others for not being the same. Thus his advice, if it is really wanted—and it very occasionally is—can be surprisingly sensible.

It would be unfair to reveal all the professional secrets, but it seems essential to explain at this point how the efficient organization is first singled out. If the teacher can find what the right answers are from a glance at the handwriting, by what similar standard is the consultant to know which organization is best?

Nothing could be simpler. Among the really expert, all organizations are instantly judged by the looks of their female staffs. Vice President A, who cannot find an attractive girl for his outer office, is most unlikely to have found anything else. His filing system can be reported as inefficient without further inquiry. What should he do about it? He should adopt the system used by Vice President B, whose secretary is obviously a darling. We do not know or care what his system is, but it was the choice of a man whose discrimination has been proved.

Remember, however, that the secretary's attractiveness should be of the right *kind*. A sultry siren is no better as an efficiency symbol (and possibly worse) than a frumpish middle-aged spinster. Where either appears, the organization is in a bad way and ripe for drastic reform. What ought to be done—apart from erecting (or demolishing) partitions? The expert casts his mind back to the last efficient factory he saw—that, as it happen, of the Cabbage Canning Corporation, where the blonde receptionist was way above average. Her background, he recalls, was a pastel shade of green. How would it be to begin the present reform with a change in color scheme?

*Mr. Parkinson's article is reprinted with permission from the New York Times Magazine, April 3, 1960.*

# An Intercom System Breaks Telephone Traffic Jam

HAVING fought to a standstill on such issues as speed and luxury in the jet-inspired "battle of the box office," major overseas airlines have shifted to a new front—customer ground service. Here the issues, though less glamorous, are probably more important to the average passenger, for they involve the basic areas of reservations and flight information.

One company, Lufthansa German Airlines, pinpointed its major problem of customer loss and inconvenience to an inadequate telephone communications system. It was found that during the daily peak period, from 10 a.m. to 4 p.m., customer calls jammed the switchboards and overwhelmed the operators.

When the customer finally did get through, the call was often put on a "hold" basis presenting an additional problem of delay. Information on interline transfers, tariff charges, cargo and flight scheduling required sales counter employes to make "refer-back" calls to other departments to get this information or to obtain approval for specific action.

Lufthansa's management took the first step toward solution by surveying its telephone communication system. Analysis of employe telephone use, procedures and availability were made and studied. The company followed up by checking the daily switchboard traffic volume, the number of incoming calls connected, the number of calls held at the switchboard because the called party's phone was busy and the number of internal refer-back calls required to service incoming calls.

The survey also took into consideration the number of inter-office calls made daily and the number of these calls "blocked" by operators because of busy intercom lines or preoccupation with incoming traffic.

The results revealed that the use of the same telephone for two separate purposes—"city" and inter-office—was contributing to the obvious delays. It was too clear that many calls at the sales counter were placed on hold lines while the employe used his phone for an inter-office call. The large volume of calls during peak hours necessitated the operators to establish an unofficial priority system which was no answer to the problem, and it was found that employes, unable to reach another department by telephone, would leave their position at the sales counter to walk to another department.

The loss of time involved in these procedures reduced the number of sales that counter personnel might handle and, in turn, it contributed to a marked loss of potential sales for the airline.

It was apparent to management that the communications department must immediately improve the telephone system to provide: (1) a system for handling an increased volume of incoming calls, (2) faster service for incoming calls, and (3) equal or more inter-office telephone facilities.

## Freedom from the switchboard

The department came to the decision that two separate phone systems were necessary to accomplish all three goals. The public telephone switchboard had to be freed for incoming and outgoing calls only, and a private intercom system would handle internal calls.

The equipment chosen was an automatic exchange dial telephone system produced by Tele-Norm Corp. It consists of a completely automatic switchboard linking 60 dial telephones in Lufthansa's two New York City office buildings.

Because it is automatic, the system eliminates the need for a special operator. It offers a "lock-on" circuit connection which assures privacy, and at the same time arrangements can be made to set up "conference" calls. It also provides a "group hunting" arrangement which shuttles a call from a busy phone to another in a certain department until a free line is found.

Each counter employe has a second phone for inter-office communications. When an outside call requires internal reference, the employe uses this phone to call the proper department—while he is still connected on the outside line. This change alone has been credited with a 33 percent increase in the volume of calls received and handled, and at the same time the company can report that

Inter-office calls on the private system keeps "city line" telephones open for a greater number of important incoming calls.

actual telephone sales have increased. There is the added advantage of having the sales personnel always at their stations, rather than wandering to another department in search of information.

In the main communications center, the nerve center of Lufthansa's national operation, teletype machines connect the New York City headquarters with 25 out-of-town sales offices. There was a time when it took nearly three hours for messages to be transmitted to the proper office because of message center service schedules. Now, through the use of the private telephone facilities, messages received on teletype are relayed immediately and replies can be speeded back to the originating source in a matter of a half-hour.

Lufthansa's buildings house sales and top management offices in one building and administration and reservations departments in the other. Communications often bogged down between the two buildings because of the lack of line availability.

Now, the private system connects both buildings and provides direct and immediate contact between top management and administration without the need for public phone use.

This leaves the "city line" phones on the executive desks open for a greater number of incoming business calls, which has dramatically reduced the number of call-backs for executives.

The phone system also plays a new role in the accounting section. This unit collects and records data on local and out-of-town sales and revenue. The teletypes bring in the out-of-town reports, and they are relayed immediately by the intercom phone. Reports from other parts of the New York building also are called in directly and followed up later by a formal report. The system has speeded up the recording of this data and enabled the department to make up complete daily reports as compared to previous bi-weekly ones.

## Competition at the ground level

The installation of the internal telephone system has reduced management operation costs in addition to providing a general operation speed-up.

The company reports an immediate $1,200 savings per month in net cost through the elimination of an operator and rented trunk lines formerly used for intercom on the public telephone switchboard. Additionally, a messenger has been eliminated at a saving of $200 a month.

Lufthansa estimates that at the present rate of savings, initial purchase price of the system can be amortized in a period of two years, but most important to management is the fact that it feels the company is in a firm position to compete at the ground-service level with any of the companies flying jets to Europe. ■

# *Administrative Systems— A Management Necessity*

**By Dean A. McGee**
**President, Kerr-McGee Oil Industries**

WHETHER we like it or not, our businesses and the rest of the world around us are characterized more and more by increasingly complex and widespread organization. We face a world where organizations of every kind will become more numerous, more integrated and bigger.

The problem of business managers, in such a world, is not to do away with organization but to make sure that organization serves a purpose—that is, preserves the initiative, the creativeness, the flexibility, the adaptiveness, the responsibility and accountability of the individuals in it. Consequently it is not surprising that the terms "methods," "systems and procedures," "integrated systems" and other similar phrases are appearing so frequently in all of our management and business literature and our conversation, and that we are becoming more conscious of their place among the tools of management.

**The problem facing management is to establish systems and procedures which provide necessary information and control, yet still retain individual creativeness.**

A recent survey of the organization and administration of systems in the petroleum industry was conducted by the Division of Finance and Accounting of the American Petroleum Institute. It showed that of the 23 companies surveyed, 21, or 91 percent, have a formal systems organization. Certainly, administrative systems are more and more being recognized as necessary to better management.

I have had the privilege of growing up with a company which, in 20 years, has progressed from a small drilling operation to a fully integrated oil company. When we were a small, close-knit group, we had virtually no controls and certainly no written procedures. Management operated the business on the basis of verbal understandings and with an intimate knowledge of all of the organization's activities and its people. As we have grown, we have progressed not only through numerous stages and patterns of systems development and application but also through widely fluctuating philosophical approaches to the whole systems and procedures problems.

For most of our corporate existence, Kerr-McGee didn't have a formal systems organization and, consequently, no specialists schooled in the techniques. During this period, the selection of a pattern of procedures and controls largely rested with our managers of operations and was considered a part of their administrative responsibility. As would be expected, our experience ranged from well thought out and administered programs, through reluctance to changing existing work patterns, to open hostility and resistance to the imposition of unnecessary red tape.

We have had a systems organization for some years now. Our systems are planned and installed by specialists; but, we have found, as I am sure others have, that this planning and installation must be a joint effort between operating and systems personnel to be accepted and to be effective. Also, we have found that top management must

Dean McGee, left, president of Kerr-McGee Oil Industries, Inc. and his business associate, Senator Robert Kerr of Oklahoma. Mr. McGee has been president of Kerr-McGee since 1954 and has served his company since 1937. In the background is one of the company's offshore drillings rigs.

emphasize and give vigorous support to a systems program if it is to have a full opportunity to succeed.

Most of the time, we have had too few procedures and controls. Part of the time, in certain divisions of our company, we have had either too many or failed to keep them abreast of changing operating conditions. Both situations, in our experience, are equally bad. We have found that the need for systems and controls, in addition to being related to size and complexity, is affected by the kind of organization, the type of people in it, and their capabilities and philosophies for doing business.

Organizations which function by committee, in my opinion, require more elaborate procedures and controls than those operated in a straight line manner based on individual responsibility and individual accountability. When responsibility for success and failure is lodged in individuals instead of groups, people are more concerned and more conscious of their roles in carrying out specific actions and attaining maximum results.

Our problem in executive management has been to establish systems and procedures which will provide management with necessary information and control, yet will retain individual creativeness, incentive and accountability. This, we have found, is a difficult tight rope to walk.

## No time to be last

It may be well to define executive management at this point since we are discussing systems and executive management. A description of my job may be the best way to do this. Like most presidents, I report to the board of directors and the stockholders, for whom I supervise operating management, financial management, and administrative management. My efforts are directed toward the profitability and development of the company. My task is to establish policies and practices which will realize these objectives, see that these policies and practices are carried out and make sure the company's activities result in the corporate image that reflects the business philosophy of the board of directors. In any organization, the effectiveness of a systems program must be measured by its contribution to the successful accomplishment of these objectives.

The development of a company is mainly one of long term planning and the continuous re-evaluation of plans in the light of new knowledge. Systems can contribute to such planning by providing management with complete, accurate and timely information with which to make intelligent decisions.

Operating people who are smothered under the dead weight of custom, inertia and meaningless paper work do not, of course, make their maximum contribution to the profits of a company. The systems man can make his profit contribution by aiding operating people in streamlining their administrative tasks so as to eliminate unnecessary paper work, by supplying new ideas and by studying objectively over-all effectiveness of operations. It is axiomatic that everyone in an organization should perform only those tasks which add to the efficiency, effectiveness and profitability of the whole. The achievement of such an ideal situation under constantly changing conditions is, of course, one of those things that is more easily said than done.

We are living in a rapidly changing world and our business activities daily feel the impact of the changes. We were barely into the atomic era when the space age came along. Scientific knowledge is

Dean McGee serves as president, vice president, director or trustee of over 50 business and associations. He is participating member of another 50 organizations. His theories and research work has been published in oil and geological journals, and he has been honored with election to the Oklahoma Hall of Fame and the title "Most Outstanding Industrialist of the South," presented in 1955.

accumulating at a constantly accelerating rate and technological discovery and invention daily add to our know-how, our products and production methods. All of this adds up to an explosive economy and higher standards of living. Certainly this is not a time for any business organization to show smugness, complacency, inertia to change, or a tendency to be last to learn new ways.

## The state of bewilderment

Systems people have their greatest opportunity to make a major contribution under such circumstances. They can help to point the way to a better understanding of how organization can be used constructively to meet changing conditions without, at the same time, destroying that which should be preserved.

Those who fail to heed the changing patterns of business will eventually be absorbed by those who do. Those who are lulled into a sense of complacency and only strive to maintain the status quo will be standing at the crossroads in a state of bewilderment while their competitors will have pushed on toward greater productivity and profits. It is this pattern of constant change, along with the increasing size and complexity of business, which triggers or at least makes more acute, the need for successful communications and control. "Communications" and "controls" are two of the functions of systems activities which I consider to be of primary importance as aids to executive management. They are important because they free executives for their most important daily activities and for long range planning. We see the results of the efforts of systems people in such activities as: forming familiar organization charts, writing policy manuals and instituting standard procedures. The skill with which we as managers execute our responsibilities depends in large measure on our ability to establish such lines of communication and flexible control over operations.

The present industrial complex is such that we as individuals cannot be expert in all fields, nor can we personally participate in every decision. Our job then is to outline broad corporate policies, organize effectively, and establish a system of communications and control which, when combined with management skill and capital, will produce optimum results. While communications and control are only two facets of the broad spectrum of systems work, they are important; and I would like to comment more specifically about each. Communications and control are related to some extent, but they should be considered individually.

Good systems and procedures can help to create

effective communications within an organization. Usually each member of a management team is responsible for a limited segment of the company's operation. Each man has the problem of conveying management directives or work information to the people under him; and his subordinates, in turn, pass the information down. This pattern continues until, finally, someone takes specific action.

## According to Webster

The problems begin when the action taken is not consistent with the intentions of the executive who originally wanted the work done. Too often the cause for this failure is inadequate or inaccurate communications.

Webster defines communications as an interchange of thoughts and ideas by words, letters or messages. For effective communications, the thoughts and ideas of one must be understood by another in exactly the same manner as the first intended it. This is a simple fact, yet some of us fail to apply this principle in our own operations.

A company would not, for example, consider drilling a well unless the terms and conditions of the drilling agreement were clearly set out in a written contract. Yet, we usually depend upon employes who did not participate in the negotiations to carry out the agreement with only a verbal understanding of the written arrangement which may have passed only by word of mouth through several descending steps of supervision.

Several years ago we had difficulty in processing vendors' invoices in time to take cash discounts and at times were accused of being slow in paying our bills. A study of the problem revealed that vendor invoices, after being received in the accounting office, had to be mailed all over the country to secure confirmation of receipt and approval to pay. It was not uncommon for a field manager to receive 100 invoices for his approval and return.

## Procedural pitfalls

This was a basic problem of communications. First a system for the purchase of materials was established. It was called a purchasing procedure, but it could have been referred to as a communications network for the acquisition of materials. In addition to solving a serious problem, the new system provided controlled purchasing and saved the company many dollars.

However, "procedurizing" operations is not without its pitfalls. It, like anything else, can be carried to extremes. Procedure manuals and policy declarations are merely tools of management; they do not supplant managers or managerial capability. It is important in developing a systems program that this be clearly understood by all concerned.

Success and profits are achieved through intelligent planning and vigorous execution. Heavy reliance on written procedures may actually stifle initiative and provide an excuse for failure to assume responsibility. An increase in the volume of procedures does not guarantee an increase in management effectiveness. In fact, an excess of procedures (red tape) can and does overwhelm organizations by sheer mass—or "mess"—of data, records, and reports.

When this happens, communications are at fault. Communicating (upward, downward, and

*Continued on Page 40*

A graduate mining engineer, President McGee keeps his active interest in the exploration aspects of his company. He is shown here emerging from a uranium mine in New Mexico.

New "Solid State" Univac III system with high-speed peripheral equipment.

# *Univac III Features Higher Speeds*

**An MBA Product Preview**

FEATURING processing speeds nine times faster than its predecessor, Univac II, and offering a 25 percent increase in operating efficiency, the Univac III "solid state" system has been added to the large-scale electronic computer line by Remington Rand Division of Sperry Rand Corp.

Jay W. Schnackel, vice president of Remington Rand's Univac Division, calls the new computer "the lowest-cost computing system available in terms of cost per unit of output." It will rent for $15,000 to $30,000 a month depending upon the system requirements of the user, he added.

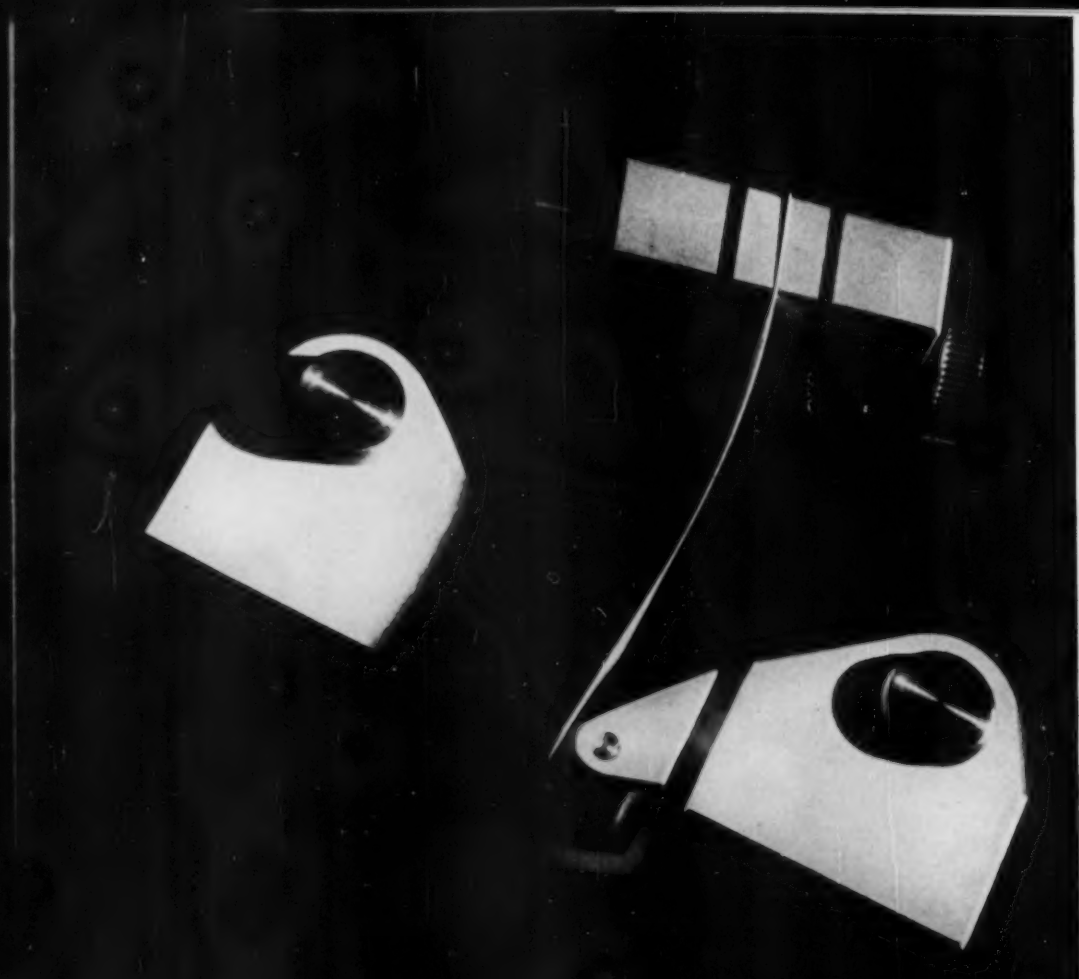
Univac III has a unique "program interrupt feature" that automatically tells the computer when its peripheral equipment has finished a task so that it can instantly be put to work again. This has been achieved by using a printed circuit similar to that in the Larc, the giant computer designed by Remington Rand for the Atomic Energy Commission.

As an example of its efficiency and speed, it was explained that the entire contents of a standard letter-size file drawer can be stored on a single reel of tape and read by Univac III in 4.8 minutes. It reads—writes at speeds of 200,000 digits a second and computing can be carried on simultaneously. Input and output of data is five times faster than Univac II.

Another feature is that typewriter communication in English can be maintained between the computer and the operator. This is in contrast with systems which require the use of mathematical symbols for this process.

The company announced that enhanced memory storage is also available; magnetic core memories can hold up to 16,384 words and the system expanded to double that capacity.

Univac III will work with both magnetic tape and punched cards. The card reader operates at 700 cards a minute and data will flow from its high-speed printer at the rate of 700 lines a minute. The new Card-punching Printer can be utilized as peripheral equipment, further speeding the output of cards which must be printed on one or both sides. Circle No. 117



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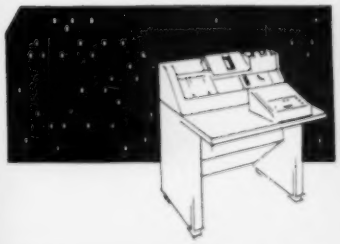

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Freight bills are sorted by customer at Transport Clearings' Long Island Office, then go to the billing room. More than 26,000 bills are processed daily. Files are by Le Febure Corp.

# Personalized IDP for Small Business

A PERSONALIZED integrated data processing system can have many benefits for the typical small office as indicated by the successful operations of Transport Clearings of Metropolitan New York, Inc.

This firm put IDP in action the day it opened for business two years ago. Since that time, it has watched its volume increase almost seven-fold. It has also discovered that it is possible to process expanding paperwork loads without the necessity of enlarging its somewhat restricted quarters.

Created, owned and maintained as a non-profit organization by interstate motor freight carriers operating in the Greater New York City area, this Rockville Centre, L. I., firm is the largest of the nation's 17 Transport Clearing House associations. The major function of this network of one-stop disbursement-collection agencies is the expediting of payments to member carriers of freight bills due them from shippers and receivers.

General Manager Richard T. Norton installed a series of Burroughs "Sensimatics" accounting machines in May of 1958 to ensure efficiency, as well as to prepare for the anticipated rise in paperwork. By integrating procedures and machines into logical operating sequence, both billing and accounts receivable transactions were coordinated in quick order for rapid, assembly-line processing.

When a carrier joins Transport Clearings, he consents to let the association handle all his billing in the Metropolitan New York area. Each day, he submits complete lists of his customer freight and interline bills. Transport Clearings "buys" these bills, sorts them according to customer account, and prepares its own statement for mailing to the customers, together with the freight bills.

After deducting a slight operating expense, the firm makes out bank drafts for the total amount billed by the carriers. It then mails these drafts to the carriers, permitting them to convert receivables immediately into cash.

To finance this operation, the First National City Bank of New York makes available to the firm a $7.5 million revolving loan. A specific amount is borrowed each day, based on the volume of bills purchased from carriers. In turn, Transport Clearings reduces this loan by the amount of collections received from the shipper-receivers.

All billing is done on 14 Burroughs F 201 accounting machines. Ordinarily, Mr. Norton reports, an operator is able to process about 2,000 bills during a seven and one-half hour day, after an average of five weeks' training.

As payments from shipper-receivers are ac-

General Manager Richard Norton has seen the daily volume climb from $80,000 to $700,000.

A billing operator is able to process about 2,000 bills during a seven and one-half hour day.

cepted, the checks are sorted to accounts, stacked for deposit at the end of the day, and payment data is directed to the Accounts Receivable Section. Operators using Burroughs 10-Key adding machines match and prove the payments against the accounts receivable records originated during billing operations.

Carrier payments, interline charges, service fees, and cash reports are handled separately by large-capacity Burroughs F 300 and F 500 accounting machines.

Storage problems are offset by the firm's policy of microfilming records on three Eastman Kodak "Reliant" microfilm machines. It can additionally service accounts by making copies of transactions on Haloid Xerox "Copyflo" printers for customers and carriers whenever required.

The two major advantages arising from this interplay of fast machine processing and microfilming, Mr. Norton explains, are passed directly on to members and the shipper-receivers. The former are enabled to exchange receivables for cash within 96 hours. The shipper-receivers are enabled to issue only the single check in payment of the consolidated freight bills of all member carriers. Resultant savings in accounting and bookkeeping costs, service fees, and records storage space are realized by all.

Several statistics will serve to point up the impressive growth of Transport Clearings over the past two years. In May of 1958, the firm averaged 4,000 freight bills, representing $80,000 in receivables. Currently, these figures read 26,000 and $700,000, respectively. The office staff has multiplied from an original 30 employes to more than seven times that number. Membership rolls, which once listed 13 motor freight carriers, have been stretched to include 150.

Much of the firm's progress, of course, can be ascribed to the IDP system initiated by Mr. Norton. Despite the many increases in volume it has been called upon to process, the system has retained its original simplicity of operation, adaptability and low maintenance costs.

With these three features "built into" its own individualized system, Mr. Norton believes, almost any small office can share in the benefits to be derived from IDP. ■

An MBA News Feature

# *European IDP Mission Tours United States*

At the Chicago meeting of the EPA mission, left to right, B. A. Maynard, committee president; K. Seelmeyer, project manager, and J. A. Goldsmith, report editor, talk with Alex Orden, director of the Operations Analysis Laboratory of the University of Chicago, who was instrumental in bringing the group to Chicago.

TWENTY-SEVEN data processing experts and educators from 11 European countries have completed a searching tour of government, business and educational facilities in the United States.

Culminating their mission, which was to study and evaluate methods and equipment used for integrated data processing in this country, the European Productivity Agency team met with IDP specialists from the Midwest in an informal, international meeting at the University of Chicago.

Team members told MANAGEMENT and BUSINESS AUTOMATION that they were particularly interested in the thinking that lies behind the systems design employed and the solutions found by smaller and medium-sized firms. Their travels took them to installations and manufacturing facilities in the East and Midwest, with three full-scale conferences in New York, Washington, and Chicago.

At the Chicago meeting, a two-way exchange of ideas took place. First the visitors heard American businessmen who are vitally concerned with IDP. J. W. Redding, director of systems and procedures for The Standard Oil Co. of Indiana, told them of "Overall Systems and Control Concepts," M. L. Graves, vice president of the Northern Trust Co. talked on "Electronics in Banking," and L. L. Van Oosten, assistant vice president of the Allstate Insurance Co., talked about "Planning for Solutions in Electronic Data Processing." They also heard from Arnold E. Keller, auditor of MANAGEMENT and BUSINESS AUTOMATION; Robert Kinzig, Preferred Business Service Corp.; Benjamin Mittman and Terence G. Jones, Armour Research Foundation and Joseph Glickauf, Pierre Reveillion and George Danehower, Arthur Andersen & Co., Chicago.

Members of the mission indicated that, in most cases, integrated data processing is in the formative stages in their countries. Hardware is available, but there is a lack of personnel and training for IDP, a lack of systems experience, and, most important, a lack of top management understanding of the problems involved.

W. Robert Hydeman, left, director of the computer systems division of management sciences for Touche, Ross, Bailey & Smart, of Detroit, chats with O. K. E. Karlquist, manager of the programming department for AB Atvidabergs Industrier, Sweden, producers of the FACIT computer. Charles Gilbert, publisher of MBA is in the background.

The fact that something is being done to break these bottlenecks was illustrated by Machgielis Euwe, director of studies for the New Netherlands Automatic Data Processing Research Center. This center, which is still in a formative stage in some aspects, has one major goal—to bring guidance and objective information to business firms who need and seek help in solving their problems.

Some 300 firms in Holland will eventually make use of the center's facilities and will contribute financial help to keep the program in operation.

There is a hope, Mr. Euwe said, that this center might someday be international in its scope.

Personnel will refrain from taking the role of consultants, acting rather as sources of information in problem solving. At the present time there is a documentation program underway. Some 2,000 books on automatic data processing have been collected (in English, French, German and Dutch), and the center receives approximately 70 periodicals in many languages. Every piece of information in these volumes has been cross-referenced, and whenever someone wants details of an application, the material is at his disposal.

Center personnel will be engaged in research,

Samuel Kataj, left, adviser to the Secretariat of the Administrative Committee of the City of Copenhagen, gets the Irish point of view from J. F. Donovan, systems officer for Irish Airlines in Dublin, and John Dunphy, chief accounts inspector for the Irish Peat Board.

studying both problems and applications in automatic data processing. The fruits of this effort will also be available to firms who participate in the program. A training center for programmers and other data processing people is being set up now.

Another area of data processing—education—was highlighted by D. J. M. Coward, professor of business economics at the Norwegian Commercial University in Bergen, Norway. He has been paying particular attention to the educational facilities in this country, and he pointed out that in Europe, for all intents, only the surface has been scratched.

Not only young people need training, he said, but all levels of business administration must be informed as to the importance of integrating the flow of data, either with or without a computer.

The EPA mission completed its tour of this country with trips to installations in Minneapolis-St. Paul, Milwaukee, Lubbock, Tex. and Ft. Wayne, Ind. The team then returned to Washington to begin drafting their report. ■


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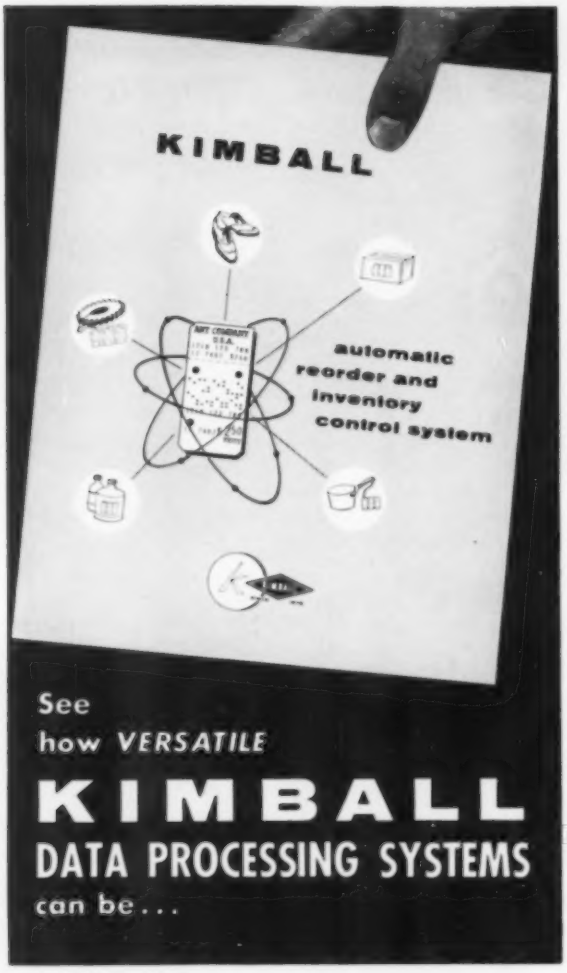


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# Keep Ramblers Rolling

*(Continued from page 21)*

partment has an IBM "usage card" for every production part, telling specifically how the part is used. Planning also has a vendor name card for every purchased part, listing the supplier's name and the percentage of business he normally gets for that part.

From American Motors' Central Office in Detroit, Planning receives a forecast of anticipated orders for the next four months, set up by percentage of options. For example, of 5,000 Rambler Six four-door sedans to be built, 53 percent may have automatic transmissions, and 10 percent may have power steering.

## Rolling round-the-clock

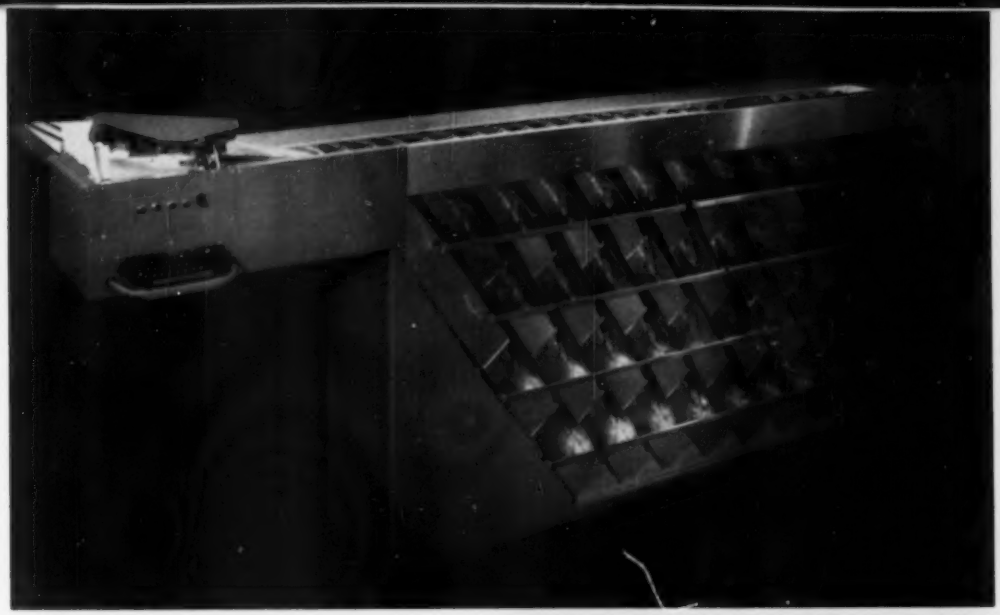
Cards punched from this forecast are put through the IBM 650. It calculates the weekly requirements for each option, punching the information into output cards. These go through an accounting machine which prints a Weekly Requirements listing on a duplicator master. This document, which usually runs about 48 pages, indicates the number of each type of option for each week.

Output cards for each option are then merged with the master usage file and run through the computer where requirements for each part, in pieces, for each week are calculated. The output from this run is merged with vendor name cards for the specific parts, along with covering service orders and replacement parts needed to replace items scrapped during manufacture.

This merged deck goes through the 650 which calculates and punches an output card for each vendor. This card shows the number of pieces each vendor is to supply. These output cards are separated and remerged with just the vendor name cards and put through an accounting machine to print multi-part vendor releases.

As calculating and printing is done electronically, the opportunities for errors, such as transposition of numbers, are eliminated, and the whole procedure takes a fraction of the time it formerly did.

There are many factors that combine to "keep Ramblers rolling" at a record sales pace, and not the least of these is the efficient manner in which electronics have taken over the paperwork chores. As Mr. Hagan reiterates, "Processed manually, these tasks would require an army of people working around the clock — an army that would overwhelm our housing, training and supervisory capacities." ■



**An MBA Product Preview**

# *'Keytronic' Sorter Speeds Direct Mail*

SORTING incoming or outgoing mail at speeds ranging up to 6,500 pieces per hour is the promise of the "Keytronic" Mail Sorting Machine developed by Universal Business Machines, Inc.

The Keytronic was designed to handle the problem of sorting direct mail into proper Post Office breakdowns, required by bulk rate postal regulations. It is also being used to sort incoming mail to facilitate quicker in-company delivery.

A 36-inch, motor-driven chain conveyor brings the envelopes to a reading position at the operator's area. The operator reads the address, and using a dual keyboard similar to that of a typewriter, sends the letter to any of 50 bins using either an alphabetical or numerical code. If a finer sort is required, the second pass could actually give a maximum breakdown of 2,500 divisions—with each of the 50 previously sorted divisions breaking down into 50 other divisions. As an example, a first pass for the 50 states could be broken down on the next pass to 50 cities within each state.

The capacity of each bin is 180 pieces or a stack of mail approximately five inches high. A series of warning lights indicate that a bin is filled.

At the present time, two basic models of the Keytronic are available. One, the Model 2000, handles mail pieces $2\frac{3}{4}$ by 4 inches up through $4\frac{1}{4}$ by 11 inches. The Model 3000 can handle pieces from 3 by 5 inches to 6 by 11 inches. The standard number of bins range from 30 to 50 in both models, but machines requiring a number of bins other than these can be made to order. The machine is approximately 10 feet long, 18 inches wide and four feet high. It rides on ball-bearing rubber casters and can be moved to different locations in the plant or office.

Operator reads mail address as it appears above keyboard. Alphabetical or numerical code dispatches letter to proper bin.

Pilot models of the unit were in operation for more than a year before the first production models were released. At the present time machines have been installed by both the Reader's Digest Co. and the Morton Manufacturing. In one case incoming mail is sorted by divisions, and in the other installation, third class mail is sorted by state and city in accordance with postal regulations. Procedures in each case are accomplished through a code arrangement adapted to the particular sorting operation. Circle No. 118

Dean A. McGee

# Administrative Systems

*continued from page 31*

laterally across organizational lines) through effectively written, simple policies and procedures, is essential to executive management. There is no greater deterrent in the communications network than incomplete, outdated and otherwise inadequate policies and procedures. Systems and procedures analysts often find much of the existing paperwork within their companies to be completely useless. In many cases, the paper continues in existence to fill a need for an operation that has been discontinued or changed completely in character. A report which does not prompt some action is almost certain to be little needed. Poor paperwork feeds on itself and creates an endless merry-go-round of pointless paper processing.

The oil business today simply cannot afford mere paper processors or shufflers. Management needs an information system based on sound procedures and the least paper that will permit effective operation of a business.

Control is a second important phase of executive management. Every business needs control but in varying degrees and in different areas. One definition of control that enjoys universal acceptance is "something that everyone wants to exercise providing it is not exercised on him." Though they are often distasteful, controls do provide the means for responsibly managing a complex enterprise from a headquarters far removed from its operations.

Controls cannot be sterotypes. To be effective they must be responsive to the needs of the particular operations and to the capabilities of the people managing the particular operation. Care must be exercised to keep them to a minimum and to establish only those which are justified by the nature and size of the operation. A necessity for a large enterprise may be an extravagance for a small one. Yet, sufficient control must be maintained to prevent delegation from becoming abdication. In our company, like in most companies, we have adopted a number of procedures which we feel provide the necessary controls at key points throughout the organization.

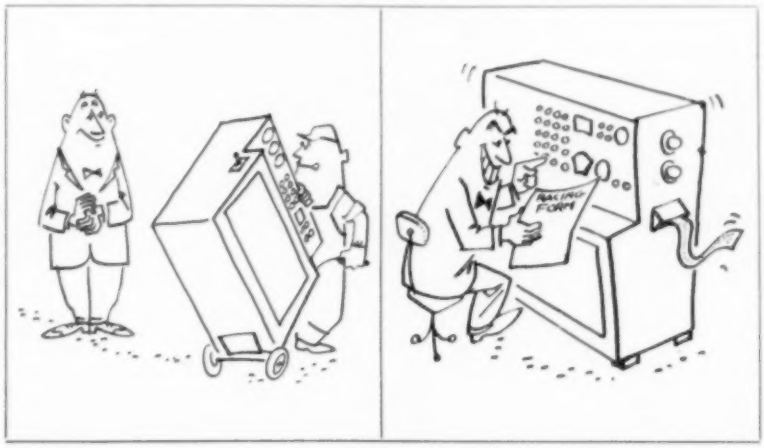
### Importance of money

First, and probably the most fundamental of all control mechanisms, are the checks and balances which are built into our organization structure so that, consistent with maximum efficiency, no individual or unit is in complete control of all phases of a transaction. To accomplish this result, responsibilities must be carefully divided. Periodic studies and analyses of the organization must be made to assure the continued effectiveness of these controls and the personnel operating under them.

A second important area requiring careful control is the actual disbursement of money. No one needs to be told the importance of money to a business. Needless to say we view the control of money and disbursement of money to be of transcending importance. Accordingly, we have worked out a carefully planned system for delegating the control of expenditures. Each successive level of management has certain limitations on its ability to authorize expenditures. We furnish each employe who has approval authorities, a card showing his maximum approval limitations in each of several categories. New authorities and revisions are controlled through our Internal Auditing Department to assure conformance with general policies. A master set of financial authorities is maintained in our Accounting Department against which all expenditures are screened before payment. We feel this procedure affords the maximum control yet provides sufficient flexibility to enable all levels of management freedom of operation within controlled limits.

A third point, and of course an important area of management responsibility, is the control of capital expenditures. The control of capital expenditures in most companies largely determines the long-term success of the enterprise. To survive and to grow, sufficient profits must be generated to provide a fair return to the owners of the business and to provide capital needed for expansion. The ability to reinvest this capital wisely is the key to future success and growth.

Capital must be directed into the channels of greatest profit, both short and long range. With all segments of the company competing for capital, executive management



has the responsibility of allocating and directing funds into projects of maximum profit potential.

For the larger companies, with many departments and diversified operations, this cannot be done on a personal and individual project basis. Executive management must determine the balance between income and outgo and maintain working capital at required levels. Funds must be provided for replacing worn out capital equipment, building more efficient facilities, and investing in new projects that offer opportunity for profit and growth. A systematic capital expenditures control system is necessary to accomplish good management in this area. In Kerr-McGee, we accomplish this by delegation of authority within control limits.

### Organized cohesion

We control the use and distribution of capital, through an Application for Expenditure procedure. Of course, on a broader plane, investments are controlled through general budgeting procedures but every projector single expenditure involving an amount in excess of a certain minimum, requires the preparation and distribution of an AFE. The Application for Expenditure provides cost justification and payout data and must be supported by a detailed explanation of the reasons for the expenditure and a summary of the benefits expected from it. AFE's involving capital expenditures are checked against the capital investment budget for the particular department originating the application. Only under extra-ordinary circumstances are capital expenditures authorized unless such expenditures are within the budget.

Our financial authorities system also plays a part in the control and distribution of capital. Approval of AFE's has been delegated (within specified limits) to various levels of management and these AFE approval authorities are included on our financial authorities.

We have many other procedures which help us in controlling our operations such as manpower controls, wage and salary administration plans, and centralized purchasing. These controls, and others, are no less important than those I have covered in more detail. Every business needs controls in different ways and in varying degrees.

At this point you might logically ask what systems and procedures has to do with these activities which are basically functions of executive management. The study of control areas and the establishment of procedures which will function as effective tools of management for control of business activities involve the special skills and aptitudes of systems and procedures people, just as the study of legal problems requires the skills of a lawyer or an accounting problem those of an accountant.

It should be added that while it is almost a "cliche" these days to say that the success of any business depends primarily upon the establishment of good communications within the organization; nevertheless, good communications do create organization cohesion and lead to effective decision making. Poor communications tend to produce opposite results. Control, like communications, is more or less a modern day phenomenon associated with the growth and increasing complexity of business.

The value of systems and procedures as an aid to all levels of management will be determined in large measure by the ability of systems and procedures people to help in creating better communications and control within organizations. The field of systems and procedures is not limited to professional practitioners but is an integral part of the job of every manager. Every person who supervises, directs or administers the activities of others has a responsibility inherent in his job for the systems and procedures that he and his subordinates employ.

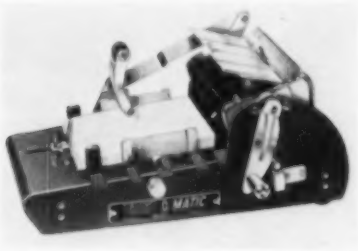
### Scratching and itching

It is futile to hope that the trend toward more complex organization of our businesses and the life we live will reverse itself. Unfortunately, or maybe fortunately, many of the things which we wish to accomplish can only be brought about by organization. Systems people, in attempting to cope with the problems inherent in the growth of organization, may be wise to keep in mind that procedures and controls which fail to recognize and preserve the creativeness and the dignity of the individual may produce more strains and problems than they cure. Such as that of the executive who said, "I don't mind the organization scratching my back for me. I do mind them telling me where I itch." ■

# *MBA Showcase*

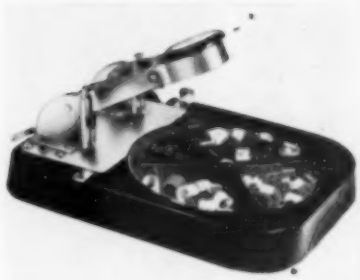
**New Products for Business Automation**

## Card-sized Duplicator



An improved card-sized duplicator which features a new feeding arm, automatic "push and roll" feeding and increased speed has been put on the market by the Print-O-Matic Co., Inc. The new feeding arm prevents lint formation while the "push and roll" feeding can handle stock as thin as tissue or as thick as cardboard, up to four by six inches in size. Runs of over 2,000 copies can be completed in less than an hour, the company points out. The entire unit measures only six inches high, 13 inches long and weighs only five lbs. Circle No. 112

## Plastic Binding Kit



A do-it-yourself binding kit enables even the amateur to assemble his own reports, booklets, albums and presentations with plastic binding. The kit, especially useful in the small office, consists of a two, three or four hole punch and colored plastic binding tubes. Tubes are removable to permit the addition or removal of sheets. Books may lie flat or back to back. Kits, available for books up to $\frac{7}{8}$ inch thick, are distributed by Tauber Plastics. Circle No. 109

## High Open Shelf Files

Open shelf files that concentrate filing and utilize the unused area above ordinary drawer files, saving up to 60% floor space are announced by The Wright Line, Inc. Fast and visible record availability also minimizes indexing errors. There is no protruding hardware to catch on clothing or take extra space. Wright Line's Hifiler units are available in five, six or seven shelf heights, with or without doors and for use with legal or letter size folders. They can also be used single or double faced and in battery. Circle No. 116

## High-Speed Binary Data Transceiver

A high-speed binary data transceiver, model S-C 301 that will make it possible for electronic computers and other high speed data handling devices to "talk" directly to each other over regular commercial telephone lines at a rate of 2400 bits per second has been developed by the Stromberg-Carlson Div. of General Dynamics Corp. This is a product of the Data Equipment Laboratory of S-C's Electronics Div. featuring exclusive use of solid-state circuitry. A modulation method minimizes errors due to impulse noise, phase distortion, frequency translation and other transmission problems. An automatic frequency control system eliminates the need for synchronizing signals. Operation between two transceivers is possible on four wire circuit. Circle No. 101

## Dutch Photostat System

A Dutch firm has developed a photostat system that produces photostats without the need of a darkroom. Full-sized photostats are produced on this simply constructed system (as illustrated) at economical cost. It provides a negative of both transparent and opaque or double sided originals in a little more than 10 seconds in unlimited number. The paper is also sold by the manufacturer, Nederlandse Fotografische Industrie. Circle No. 111

## Dry Photocopier

The Savin "99" reproduces clear copies of anything the eye can see, according to its manufacturer, the Savin Business Machine Corporation. An automatic developer change eliminates completely the handling of any liquid. Up to 12 copies may be obtained from one negative. Using Gevaert photocopy paper and supplies copies up to 9" wide and in any length are possible. List price is $99.50. Circle No. 107

## Magnetic Control Board

A magnetic steel board which holds on its surface the visual elements is available from Methods Research Corp. and is called Magne-trol. For the visual elements the manufacturer provides a variety of items; Alnico permanent magnets in various sizes and colors, magnetic card holders, units for pictorial presentation, acetate tape or colored plastic bars, and magnetic arrows. Measuring 24" by 36" standard size they can be used for production schedules, sales records and quotas, management control and analysis, graphs and charts, inventory control, personnel records and organization charts. A miniature "Trial Kit" is available. Circle No. 113

**33 PIECES OF MAIL PREPARED IN 20 SECONDS–**
**the time it takes to walk around an automated mailing department**

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For More Information Circle Reader Service Card No. 167

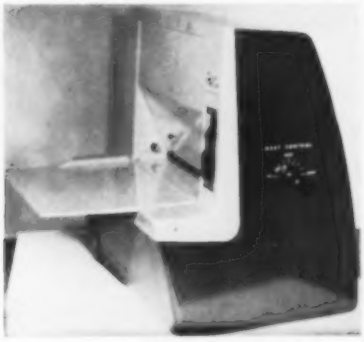
## Electric Interval Timer

Specific activities in the office, laboratory, hospital operating room, or in schools and industry may be timed accurately with a new all mounted interval timer developed by Cincinnati Time Recorder Co. Electrically controlled, each timer is driven by a single synchronous motor. The timer can be set down to the second within a 60 minute time period. It can be reset or restarted by returning the hand to zero at 60 times normal speed and automatically stops at zero. A clear neon pilot light shows the unit is timing. Circle No. 108

## Microfilm Catalog Filing System

Searching for technical information will be speeded 90% with "VSMF —The Microfilm Catalog File," states the developer, Technical Services Div. of Rogers Publishing Co. This catalog filing system on microfilm was developed by Technical Services in collaboration with Recordak Co., a subsidiary of Eastman Kodak Co. Originally produced for the missile/aircraft industry, other editions will be published later this year for communications and automotive industries. By 1961 it will be available to manufacturers in electrical power equipment, industrial machinery, instruments, photo equipment and appliances industries. This high-speed facility stores, retrieves and permits rapid reviewing of technical literature. Circle No. 102

## Heat Control Laminating



A new control will permit users of the APECO "Ply-On" plastic laminating machine made by American Photocopy Equipment Co., to dial the exact degree of heat required for papers from lightest tissue to heavy card stock. The dial, located on the side of the machine, adjusts heat automatically, assuring a professional laminating job. The low setting might be used on such papers as magazine clippings and manuscripts on bond, the medium setting for photographs and the high setting for cardboard. Circle No. 105

## "Magnetic" Ledger Sheets

A ledger sheet for automatic accounting machines features "stripes" of magnetic recording tape. Bann, Inc., cites the advantages of the new tape ledger sheets as having consistent signal output, reliability of performance, savings in time and operating costs and less wear on the read head. Called "Bann Machine Forms That Memorize," the sheets pictured are designed for the Burroughs Sensitronic Posting Machine but will be tailored to the needs of individual customers. Circle No. 106

## Shirt-Pocket Receiver

A new all-transistorized shirt-pocket radio communications receiver with miniaturized circuitry that boosts audio efficiency and requires 35% less battery power is introduced by General Electric Co.'s Communication Products Dept. The "Voice Director" weighs only 12 ounces with battery for powerful receiver selectivity and sensitivity. A ferrite loop-stick antenna, small battery and "directive" horn mouthpiece or special ear-piece aid compactness for inside or outside usage. Circle No. 103

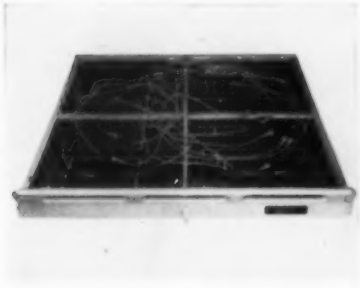
### Key Punch Desk

Built on a modular principle, the Diebold, Inc. Key Punch Desk permits users to pre-determine the kind of storage arrangements desired for present needs and provides built-in flexibility for future changes. Designed for practicality, three drawer sizes are available. Individual drawer units lock together without special equipment. Plastic dividers allow partition changes in drawers. Circle No. 115

### Diazo Copying Machine

To bring diazo copying to a broader market, Charles Bruning Company, Inc. has introduced an inexpensive fluorescent light copying machine known as Model 105 Copyflex. This machine when used with diazo papers is a tool for anyone who sells on credit and bills customers periodically. Small businesses, doctors, dentists and others who maintain records of purchases made on credit, can cut clerical costs by setting up a simple diazo accounts receivable system. Notations made on translucent ledger cards are inserted with a sheet of copying paper, the copy is then sent to the customer eliminating transcription and error. Circle No. 114

### New Control Panel Line



A complete line of control panels, wiring complements and panel wires is newly introduced by Edward Ochman Systems. Manufactured under the Ockie name they are to be marketed by representatives throughout the country. These control panels and wires are manufactured in accordance with IBM standards and specifications for use on all IBM data processing equipment. Catalogs and price lists are available. Write No. 104

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***Teaching Management How To Manage***

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## *Copies On Request*

*The following booklets, catalogs and brochures are considered of interest to readers of MANAGEMENT and BUSINESS AUTOMATION. Copies can be obtained by using the Reader Service Card.*

**Duplicating Control**—The "Program-Matic" system control attachments for small offset presses and duplicators is described in a booklet available from American Type Founders Co., Inc. The attachments are designed specifically for plants which do systems work, short-runs, repetitive work, and work requiring count control. Circle No. 130

**Industry and Staplers**—A six page booklet called "Industry . . . Staples and Saves With Staplex" presents the economy and efficiency of the automatic electric stapler in such jobs as labelling, price tagging, food bagging and binding. From The Staplex Co. Circle No. 131

**Rating Ball Points for Thermofax**—The Minnesota Mining & Mfg. Co. has prepared a booklet listing more than 150 colored ball point pens that can be used with a "Thermo-Fax" copying machine. All are rated by ability to be reproduced. Circle No. 132

**"Whole New World of Office Efficiency"**—A six-page folder from Columbia-Hallowell describes a collection of office desks and chairs to provide the most efficient use of work space. Circle No. 133

**"Automation and You"**—A new management-oriented publication that discusses the technology, equipment and economics of automation is available from the General Electric Co. Six key functions, process control, computing, instrumentation, numerical control of machines, sensing and communications are covered. Circle No. 134

# NEWS

## Elect Head of Textile Data Processing Group

**Retiring chairman of the Textile Data Processing Association, H. E. Williams, American Thread Co., left, checks over the program with James H. Dorburg, Chatham Mfg. Co., newly elected chairman. John E. Lee, Jr., controller, Callaway Mills, conference committee chairman, and Earl Brown, controller, Fieldcrest Mills, new member of the rules committee, look on.**

The Textile Data Processing Association has elected James H. Dornburg, director of market research, Chatham Manufacturing Co., Elkin, N. C., as its new chairman. He succeeds H. E. Williams, vice president, The American Thread Co.

The elections were part of the association's semi-annual conference held last month at Callaway Gardens, La Grange, Ga. Over 100 executives, representing some forty textile mills, attended the two day session and heard first-hand reports on computer experiences.

Conference highlight was a panel discussion on "The Computer and Our Experiences With It," moderated by Daniel U. Crogan, controller, Burlington Industries. Panel members included: H. E. Williams, vice president-finance, American Thread; John Vanderwerff, controller, Dan River Mills; T. J. Murphy, supervisor of computer center, Pepperell Mfg. Co.; and William Stockton, controller, J. P. Stevens Co.

## Computers In Spotlight At IAS Conference

The role of the electronic computer in the insurance industry was the center of discussion at the annual conference of the Insurance and Statistical Association held last month in Chicago. A record turnout of some some 1,800 IAS members attended the four-day session which was devoted largely to business automation equipment and system techniques. A new innovation, the "Hall of Machines" with nine manufacturers displaying their wares, was the main conference attraction.

In a hard-hitting speech on the feasibility of electronics, Carl O. Orkild, manager of 705 programming and research department at Continental Casualty Co., Chicago, told the conference "the computer must fit the general purpose of the corporation as a profit generating institution."

## Cited by Philadelphia NMAA Chapter

**John J. McElwee, left, supervisor of the Philadelphia National Bank's tabulating department, receives a "leadership and interest" award from the National Machine Accountants Association, Philadelphia Chapter, for his work in the NMAA. Roger Gregory, president of the Electronic Data Processing Corp. of Philadelphia and a national director of the NMAA, made the award.**

## Hodges Heads NOMA

R. B. Hodges

An executive of Dennison Mfg. Co., Mr. R. B. Hodges, was elected president of the National Office Management Association at the Annual Meeting held during the 41st International Conference and Office Exposition at the Queen Elizabeth Hotel in Montreal on May 23. Hodges has been active with NOMA since 1942, having served as president of the Boston Chapter and as National Director of the New England area.

In his acceptance speech Hodges said he would devote his office to maintaining the high ideals of the association and to increase its world-wide membership.

## New York Bank Installs Electronic Check System

An electronic check handling system has been put into operation by the Chemical Bank New York Trust Co., fourth largest bank in the nation.

The new system is designed to sort the checks, post them to the customer's account, prepare his monthly statement and turn out a record for the bank—all electronically. It will also figure the customer's new balance.

The system includes an electronic sorting machine, developed by Pitney-Bowes, Inc. and The National Cash Register Co., which sorts 5,500 magnetically encoded checks an hour. It also has two NCR electronic bookkeeping machines, called Automated Postronics, which can handle the record-keeping job on more than 5,000 accounts a day.

## IBM Starts Systems Research Institute

Establishment of a new school, the IBM Systems Research Institute, has been announced by Thomas J. Watson, president of the corporation. The curriculum will include such subjects as case studies in system-design, workshops in systems planning, advanced programming and business simulation techniques.

The institute will operate along the line of a university graduate school, with the objective being to set a standard of professional excellence for the industry. The faculty will include professional educators from the IBM educational department and various visiting data processing instructors selected from industry circles.

The school will be located on the United Nations Plaza in New York City. Initial enrollment will be confined to IBM personnel with the first class of 30 scheduled for this fall. Eventual enrollment is expected to be about 400 students.

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# *MBA Reviews*

## Automatic Data-Processing Systems: Principles and Procedures

*By Robert H. Gregory & Richard L. Van Horn. Published by Wadsworth Publishing Company, Inc., 431 Clay, San Francisco. $11.65.*

## Electronic Computers Principles and Applications

*By T. E. Ivall. Published by the Philosophical Library, 15 East 40th, New York. $15.*

## An Introduction to Electronic Data Processing

*By Roger Nett & Stanley A. Hetzler. Published by The Free Press, Glencoe, Illinois. $6.75.*

These three books are introductions to automatic data processing systems. They explain how computers work, giving brief histories and tell how EDP systems are applied in business.

The first is a textbook for the education of top management training in ADP systems, skills and career development, originally prepared for the Army Ordnance Corps. Business data processing, computer programming and systems analysis is covered A to Z with understanding and clarity.

Emphasized is the fact that only human brain power can successfully apply ADP to business problems. This applies to all levels such as operating, programming, systems analysis and design, as well as management decision making.

The second book listed takes us deep into the construction and circuitry of digital and analog computers. It is a second updated edition by British authority T. E. Ivall and places considerable emphasis on the application of automation techniques in research and design work, and the importance data processing will play in British economy.

Nett and Hetzler explain in clear, understandable terms how computer systems work, their language and their logic. Also presented is a guide for management in selecting a system and learning how to put it to work.

The first chapter explains the development of automation and points out a few sociological implications. The body of the book efficiently explains what DP systems are and what they do. A convenient appendix describes several systems manufactured quite objectively. Needs updating, but helpful to the beginner.

Of the three books reviewed the first is recommended most highly as a clear, well organized and complete explanation of the function and application of digital computers.


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SHELBY "CARD-SETS" OPEN NEW
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FOR MANY COMPANIES
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Card-Sets combine tab cards and carbon copies into manifold sets to speed written transactions and provide all tab card data at the time of the transaction. Transcription errors are eliminated and the key punch operator's output is greatly increased. With the tab card as its own source document, search and recheck time is also eliminated.

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- Manifold carbons for bound sets
- Colored papers or ink for identification
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- Stubs at either end

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# MBA's Calendar

**July 28-29**—Symposium on Computers and Data Processing, sponsored by the University of Denver. Stanley Hotel, Estes Park, Colorado. Contact W. H. Eichelberger, Denver Research Institute, University Park, Denver 10, Colo.

**August 23-25**—Annual Meeting-National Conference of the Association for Computing Machinery, Marquette University, Milwaukee, Wisc.

**August 23-26**—Western Electronic Show & Convention, sponsored by the Western Electronic Manufacturers Association and the Los Angeles-San Francisco Seventh Region of the IRE. Sports Arena, Los Angeles.

**September 14-17**—Annual National Business Forms Associates (NBFA) conference, at Chase-Park Plaza Hotel, St. Louis, Mo. Write: NFBA Headquarters, 409 East Broward Blvd., Fort Lauderdale, Fla.

**September 26-30**—15th Annual Meeting of the Instrument Society of America and Third Instrument-Automation Conference and Exhibit of 1960 at the New York Coliseum, New York City.

**October 10-12**—International Systems Meeting (SPA). Hotel Commodore, New York City. Write International Headquarters, Systems & Procedures Association, 4463 Penobscot Bldg., Detroit 26, Mich.

**October 10-12**—National Convention, NABAC, the Association for Bank Audit, Control and Operation. Statler Hotel, Los Angeles, Calif. Information from Jack Craddock, NABAC, 38 So. Dearborn St., Chicago 3, Ill.

**October 19-22**—American Records Management Association's Annual Convention and Records Management Workshop, at the Plankinton House, in Milwaukee, Wisc.

**October 20-22**—Seventh International Meeting of the Institute of Management Sciences. Hotel Roosevelt, New York City. Session on Computers in Simulation. Information from James Townsend, 30 East 42nd St., New York 17, N. Y.

**October 22-26**—29th Annual National Conference of the Controllers Institute of America at the Hotel Fairmont in San Francisco, Calif.

**October 24-28**—National Business Show, Office Executives Association. At the Coliseum, New York City. Contact George H. Gutekunst, Jr., NBS, 530 Fifth Ave., New York 36, N. Y.

**October 26-27**—Computer Application Symposium sponsored by the Armour Research Foundation of the Illinois Institute of Technology, Morrison Hotel, Chicago. Write Andrew Ungar, Armour Research Foundation, 10 W. 35th St., Chicago 16, Ill.

**November 1-4**—The Business Equipment Exposition, second major equipment show sponsored by the Office Equipment Manufacturers Exhibits, Inc., at the Los Angeles Memorial Sports Arena in Los Angeles, Calif. Write: OEME Headquarters, 777 14th St., N. W., Washington 5, D. C.


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# EDITORIAL

## An Integration Problem

From Copenhagen to Chicago, one thing common to data processing programs is the lack of top management understanding and support. We received first hand knowledge of this fact at an informal international meeting on integrated data processing conducted by the University of Chicago's Graduate School of Business. (See page 36.)

Some twenty-seven experts and educators from eleven countries, members of a European Productivity Agency mission, who were completing a thorough study of data processing facilities in the United States, spent several days sharing experiences with their counterparts from the Midwest. It soon became obvious that the integrated concept of data processing is as far from reality as a successful summit conference.

Management continues to give generous lip service to the concept, while at the same time embracing a "partition" philosophy of business administration that precludes any possibility of integrated systems. Purchasing, production, sales, credit and accounting departments continue to go their own separate ways in data processing endeavors, creating their "islands of automation" and defying any attempt at integrated or "total" systems.

This is the same condition that has robbed many corporations of the true potentialities of machine accounting. Any attempt to introduce a computer into these circumstances is sheer folly.

A unity of purpose must necessarily precede any system if the system is to benefit the entire corporation. When data processing is involved, such unity is imperative.

Webster defines integration as "to unite or become united so as to form a complete whole." To attempt a program of integrated data processing for a management that itself is not integrated seems to us to be putting the cart before the horse. It is an unfortunate fact that a lot of expensive "carts" are being trampled upon.

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